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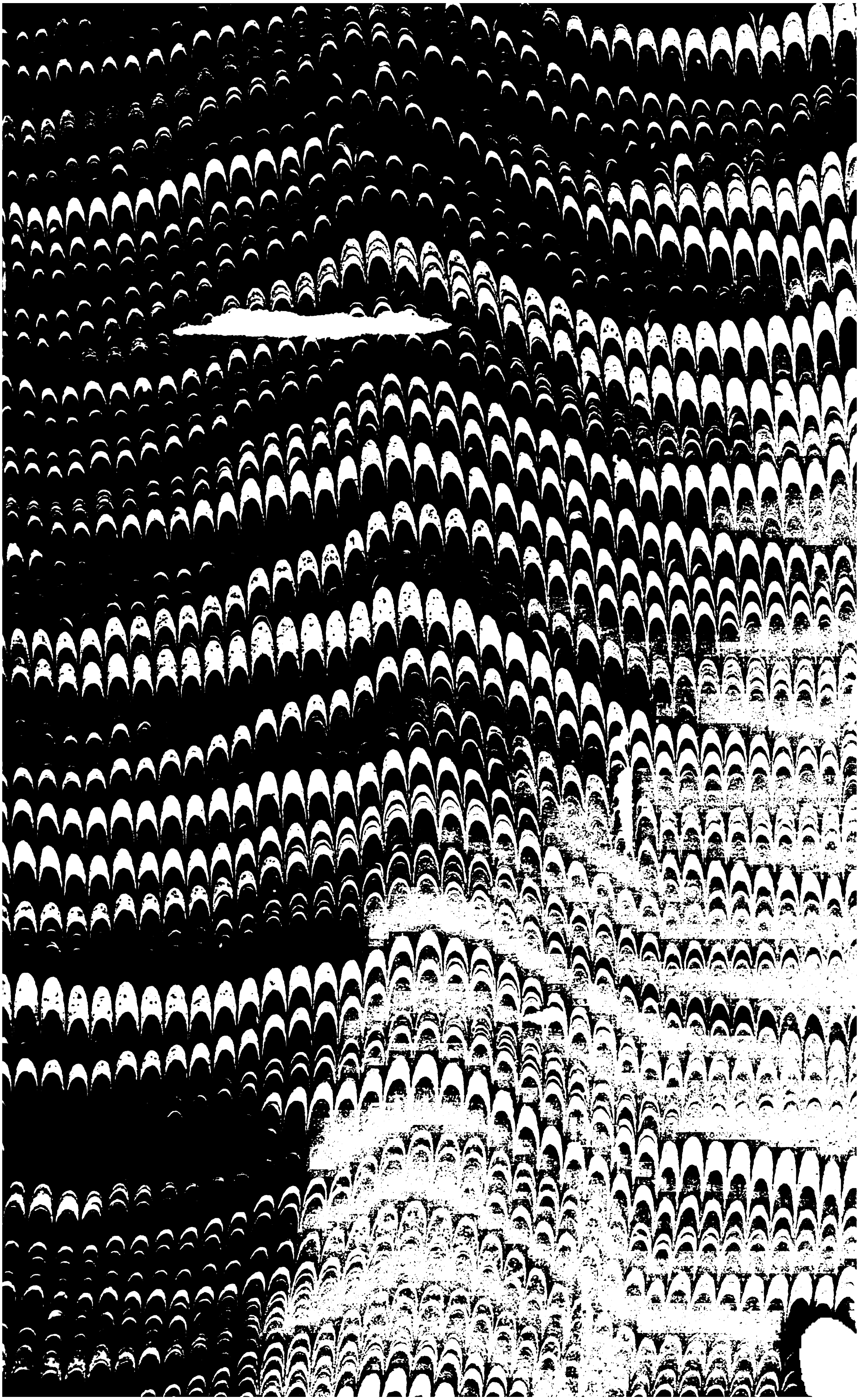

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EXOTIC FLORA,

CONTAINING

FIGURES AND DESCRIPTIONS

OF

NEW, RARE, OR OTHERWISE INTERESTING

Exotic Plants,

ESPECIALLY OF SUCH AS ARE DESERVING OF BEING
CULTIVATED IN OUR GARDENS;

TOGETHER WITH

REMARKS UPON THEIR GENERIC AND SPECIFIC CHARACTERS, NATURAL
ORDERS, HISTORY, CULTURE, TIME OF FLOWERING, &c.

BY

WILLIAM JACKSON HOOKER,
LL.D. F.R.A. & L.S.

MEMBER OF THE IMPERIAL ACADEMY NATURÆ CURIOSORUM; OF THE WERNERIAN
NATURAL HISTORY SOCIETY OF EDINBURGH; OF THE GEOLOGICAL AND HORTICULTURAL SOCIETIES OF LONDON; OF THE ROYAL BOTANIC SOCIETY OF RATISBON; OF THE HELVETIC SOCIETY OF NATURAL HISTORY; OF THE PHYSIOGRAPHICAL SOCIETY OF LUND; OF THE PHILOSOPHICAL SOCIETIES OF CAMBRIDGE,
AND YORK; OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, &c. &c.
AND
REGIUS PROFESSOR OF BOTANY IN THE UNIVERSITY OF GLASGOW.

VOL. I.

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TO

CHARLES LYELL, Esq. F.L.S.

&c. &c.

OF KINNORDY IN SCOTLAND, AND BARTLEY LODGE, HANTS, IN ENGLAND.

My Dear Sir,

I REJOICE *in the opportunity that the present publication affords of thus testifying the sentiments that I am bound to entertain towards you. To your active and successful investigations I am indebted for some of the most important subjects that have appeared in my earlier botanical works; and amongst the hours which I consider as the most agreeable of my life, I reckon those which have been rendered so by your conversation and society.*

The distance which now separates us, has diminished the opportunity of these enjoyments. But the expectations that you have allowed me to form, that your paternal seat may, ere long, become again the principal residence of your family, enable me to anticipate a closer renewal of our former intercourse; and I shall be truly happy when one of my oldest and most faithful friends will be an inhabitant with myself of this my adopted country.

I remain, yours,

My Dear Sir,

with the most sincere regard

and affection,

W. J. HOOKER.

GLASGOW,
Nov. 1. 1823.

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* Previous to the appearance of this plate, the plant here figured had, without my being aware of it, received, first the name of *Alstrœmeria pulchra* in the *Botanical Magazine*, and that of *A. flos Martini* (an appellation derived from its Chilian name) in the *Botanical Register*.

† Having, since the publication of this plant, had the opportunity of seeing the *Flora Peruviana* of Ruiz and Pavon, I am inclined to agree with the authors of the *Botanical Magazine* and *Register*, in considering the present species to be rather the *C. corymbosa* than the *C. paralia*.

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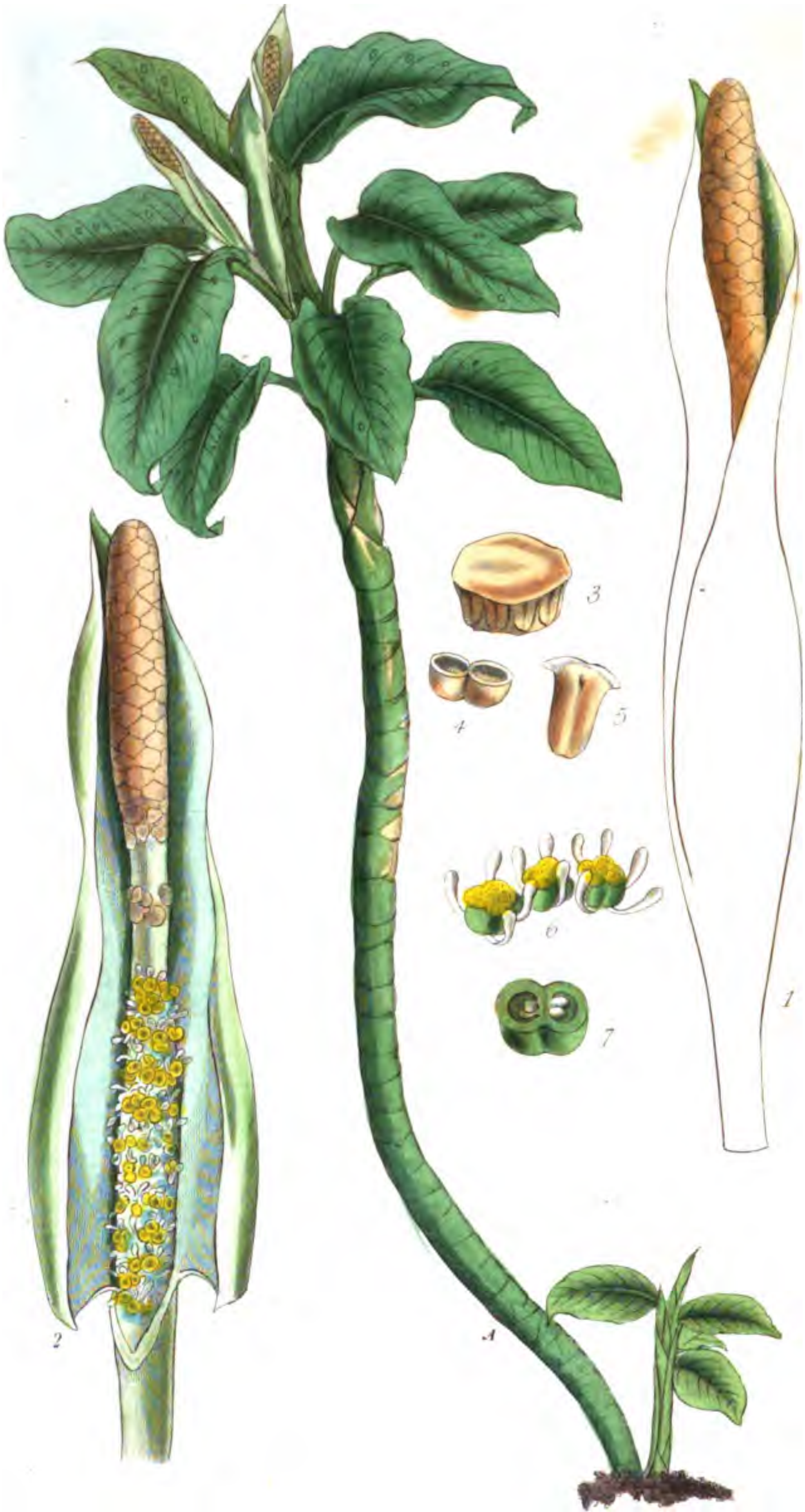


Caladium seguinum.

Eng^{d} by J Swan Glasgow

CALADIUM SEGUINUM.

Dumb Cane.

MONŒCIA POLYANDRIA.—NAT. ORD. *AROIDEÆ.*

GEN. CHAR.—MASC. *Cal.* 0. *Cor.* 0. *Antheræ* peltatæ, multiloculares, in spicam ad apicem spadicis compositæ.

FŒM. *Cal.* 0. *Cor.* 0. *Germina* ad basin spadicis inserta. *Stylus* 0. *Bacca* uni- (bi-) locularis, polysperma.—*Willd.*

Caladium *Seguinum;* caulescens suberectum, foliis oblongo-ovatis cuspidatis, spadice spatha oblonga breviore.

C. Seguinum, WILLD. *Sp. Pl.* v. iv. p. 490.—AITON, *Hort. Kew.* ed. 2. v. 5. p. 312.

Arum Seguinum, LINN. *Sp. Pl.* p. 1371.

Stem from 3 to 5, and even 6 feet in height, and sometimes as thick as a man's wrist: it is generally a little procumbent at the base, then erect, naked, jointed, green, often discoloured with the dried sheathing bases of the former years' leaves, smooth, succulent, filled with a green, highly acrid juice. *Leaves* all springing from the summit of the stem, 8 or 10 inches in length, ovato-oblong, cuspidate, undulated, having a thick midrib, and lateral parallel veins, their substance marked with pellucid white spots, often perforated; they are horizontal or deflexed, deep green, subcoriaceous, petiolated, *petioles* about half as long as the leaves, channelled, sheathing, *sheaths* terminated in a short green ligule, as in the grasses. From the sheathing bases of these petioles, arise the *spathas,* which are 5 or 6 inches in length, oblong, pedunculated, pale green, convoluted, rather shorter than the *spadix,* which is cylindrical, but attached for the greater part of its length to the *spatha.*

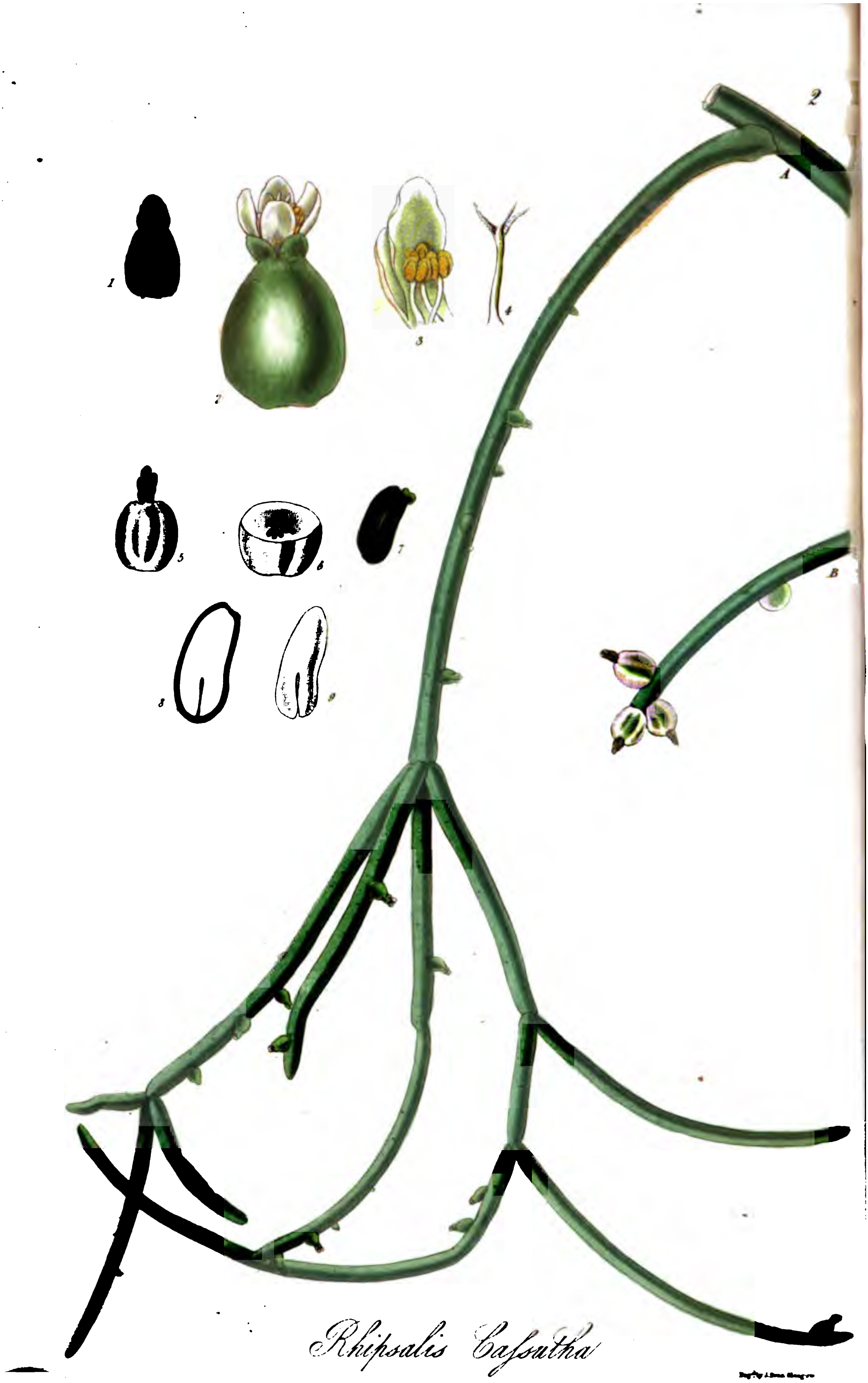
Stamens covering the upper and free part of the *spadix* all around, peltate, hexangular, their sides bearing several oblong, pendent, 2-celled *Anthers,* filled with a white pollen. The centre of the spadix is naked, or only bears a few abortive stamens. The lower part, on the side not attached to the spatha, is covered with numerous greenish, nearly spherical, 2-celled *pistils,* mostly ternate, in transverse rows, and furnished at the base with 2 or 4 white, clavate bodies, which I suspect to be abortive *Anthers.* *Ovules,* several in each cell. *Stigmas* sessile, large, yellow, lobed and wrinkled, viscid. The more advanced state of the fructification I have not seen, as the plant does not bear fruit with us.

This is a fine, handsome, palm-like plant, rising with a long, jointed stem, and having a cluster of leaves at the extremity. It is a native of the West Indian Islands, and of the warmer parts of South America. We are assured by BROWN, in his Natural History of Jamaica, that the stalk is employed to bring sugar to a good grain, when the juice is too viscid, and cannot be made to granulate properly by the application of lime alone.

The acrid nature of the *Aroideæ*, in general, is well known. In that quality, perhaps, the present individual yields to no other. SLOANE describes the species as "labris degustantes mutos reddens." Hence the term of *Dumb Cane*, an appellation fully justified by a recent instance which I have heard of in this climate. When Mr MACNAB, the excellent Superintendant of the Edinburgh Botanic Garden, was at Kew, a box of these plants arrived there from Cayenne. One of the men employed to remove the individuals to the stove, incautiously bit a piece of one of them, when his tongue swelled to such a degree that he could not move it; he became utterly incapable of speaking, and was confined to the house for some days, in the most excruciating torments. The slightest application to the tongue of the juice from the spadix, gives great pain, as I have myself experienced. It is said to impart an indelible stain to linen.

The drawing was made from a fine plant which flowered in the Royal Botanic Garden, Glasgow, in the middle of winter.

A, Plant about $\frac{1}{12}$th of the *natural size*. Fig. 1. Spatha, *nat. size*. Fig. 2. The same cut open, to shew the Spadix. Fig. 3. Single Stamen. Fig. 4. Two of the Cells of the Anther cut open transversely. Fig. 5. Two of the Cells entire. Fig. 6. Three Pistils, with the accompanying clavate bodies. Fig. 7. Germen, cut through transversely.—*All from* Fig. 3. *are more or less magnified.*



Rhipſalis Caſsutha

Eng.d by J. Swan Glasgow

2

RHIPSALIS CASSUTHA.

Naked Cassutha.

ICOSANDRIA MONOGYNIA.—NAT. ORD. *NOPALEÆ*.
JUSS. *ined.*—DE CAND.—Cactoideæ, VENT.—Cactorum pars, JUSS. *Gen. Pl.*

GEN. CHAR.—*Cal.* superne subquadrifidus. *Corolla* 4-partita, una cum calyce persistens. *Stam.* sub-duodecim; antheris rotundatis. *Stigma* 3-fidum. *Bacca* pellucida. *Semina* 12-20 intra pulpam nidulantia.

Plantæ aphyllæ. *Caules* cylindracei nunc fasciculatim pilosi, obscure articulati. *Flores* parvi.

Rhipsalis *Cassutha*; ramis verticillatis cylindraceis glabris nudis.

R. Cassutha, GÆRTN. *De Fruct.* v. i. p. 137. t. 28. f. 1.—HAW. *Syn. Pl. Succ.* p. 187.

Cactus pendulus, Sw. *Fl. Ind. Occ.* v. ii. p. 876.—WILLD. *Sp. Pl.* v. ii. p. 942. AIT. *Hort. Kew.* ed. 2. v. iii. p. 178.

Cassytha baccifera, MILL. *Illustr.*

Stems 2 feet, or rather more, in length, growing in their native country either upon the ground, or from the trunks of trees, drooping, much branched, the branches mostly verticillate, jointed, fragile at the joints, everywhere almost exactly cylindrical, green, smooth, and naked.

From the *branches* on all sides appear the small scattered *flowers*, when in perfection scarcely exceeding a hemp-seed in size, yellowish-white. *Calyx* very minute, cut into usually four ovate, obtuse, segments. *Corolla* 4-partite, segments oblongo-ovate concave, nearly equal, erecto-patent, including the stamens and style. *Stamens* about 12, united at the base of the petals. *Filaments* white, short. *Anthers* rounded, 4-lobed, dotted, yellowish-white. *Germen* inferior, or, more correctly speaking, incorporated with the tube of the calyx, thrice as large as the calyx and corolla, green, glabrous. *Style* longer than the stamens, but shorter than the corolla, filiform. *Stigma* 3-cleft, downy. The *Fruit* forms nearly spherical *berries*, about as large as pease, which are not unfrequently on the same plant with the flowers; flesh-coloured, pellucid, terminated with the persistent calyx and corolla, very juicy, containing from 12 to 20 oblong subangular brown *seeds*, which seem to be collected around a pellucid central receptacle, and are beautifully striated with dots. *Albumen* 0. *Embryo* of the same shape as the seed, its *radicle* placed next the *hilum*.

An inhabitant of the West Indian Islands and New Spain, growing, as it is said, generally from the trunks of trees, in the same manner as the Misseltoe does with us.

Such a place of growth, combined with such a habit as we see in the plant before us, and such inconspicuous flowers, with the proportionally large fruit, would, at first sight, seem to indicate a distinct genus from those shewy and splendid species of *Cactus* which we are accustomed to behold in every garden. GÆRTNER first separated the present individual from that genus, and gave it the name which I have adopted; in doing which he has been followed by HAWORTH, and by some of the continental botanists. At the same time, it must be confessed, that the characters of the genus have been very imperfectly investigated. The calyx is undoubtedly erroneously described by GÆRTNER and HAWORTH; the corolla, stamens, and style, are not noticed, and the number of seeds, in each berry, is by no means confined to 12, for I counted as many as 20 in one fruit. These seeds, too, GÆRTNER says, differ from those of the *Cactus*, inasmuch as the latter have an albumen; but when that author proceeds to figure and describe those of *Cactus*, he speaks of them as exalbuminose.

I have found myself, therefore, under the necessity of making considerable alterations in the generic character, and am still far from looking upon it as satisfactory. Indeed, the whole fructification is so nearly allied to the other cactoid plants, that, were it not for the strong peculiarity in the habit of the plant, and the high authority of GÆRTNER and HAWORTH, the latter of whom has laboured so much among the genera and species of succulent plants, I should scarcely have ventured to keep the genus *Rhipsalis* distinct.

This plant flowers during the greater part of the year, and requires the heat of the stove. We possess in the Botanic Garden some other species of this genus, which are described by Mr HAWORTH. Of these, the *C. parasiticus*, figured by DE CANDOLLE in his *Plantes Grasses*, comes nearest to the present individual, but differs, in the young branches having fascicles of hair.

Fig. A, Portion of a plant in flower; and B portion of a plant in fruit, *natural size*. Fig. 1. The unexpanded bud. Fig. 2. Flower. Fig. 3. Petal and portion of the calyx, with 3 stamens. Fig. 4. Style and stigma. Fig. 5. Berry. Fig. 6. The same cut through transversely, shewing the position of the seeds. Fig. 7. Single seed. Fig. 8. Seed, cut through vertically, to shew the embryo. Fig. 9. Embryo removed from the seed, *magnified*.

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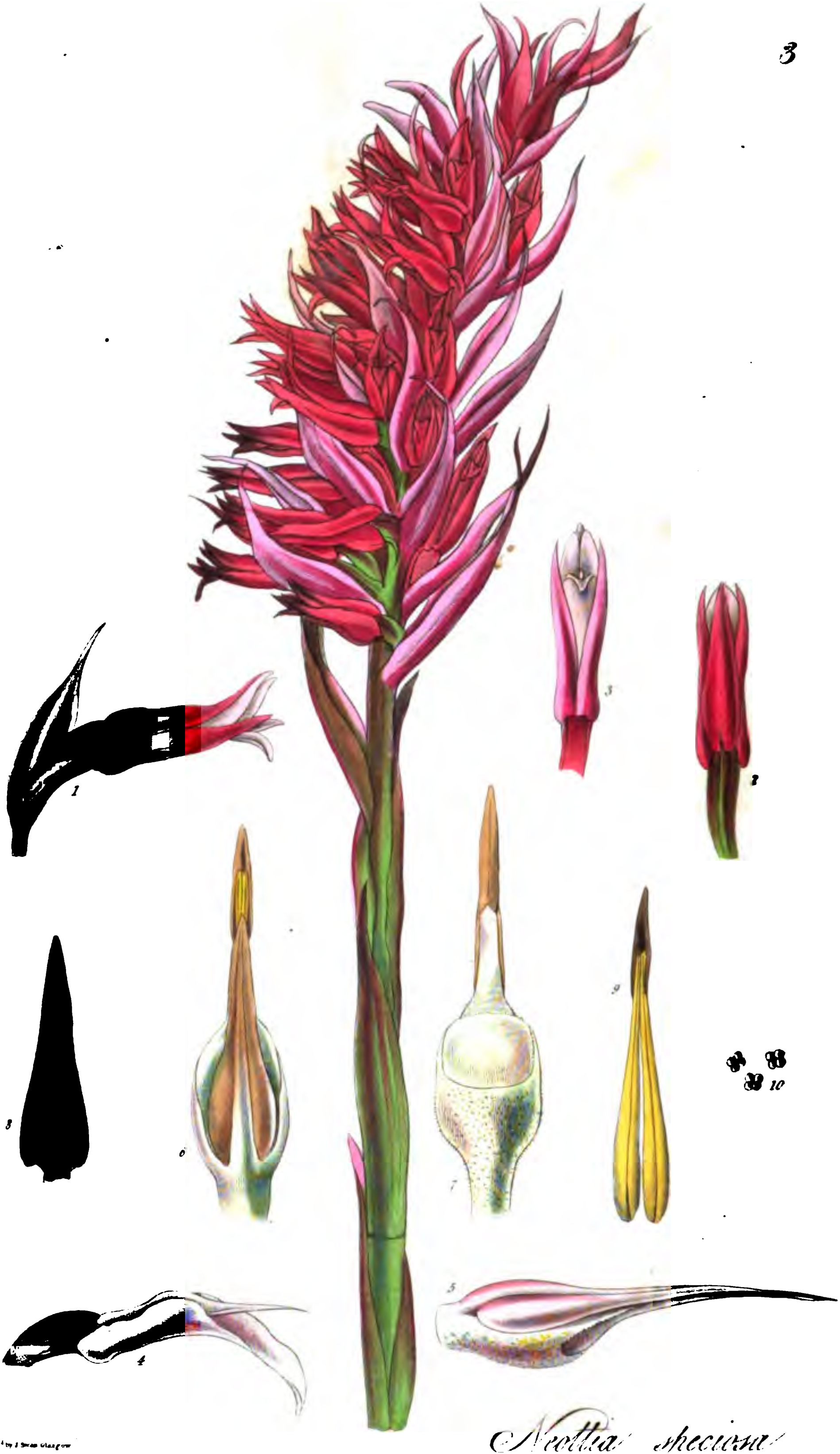

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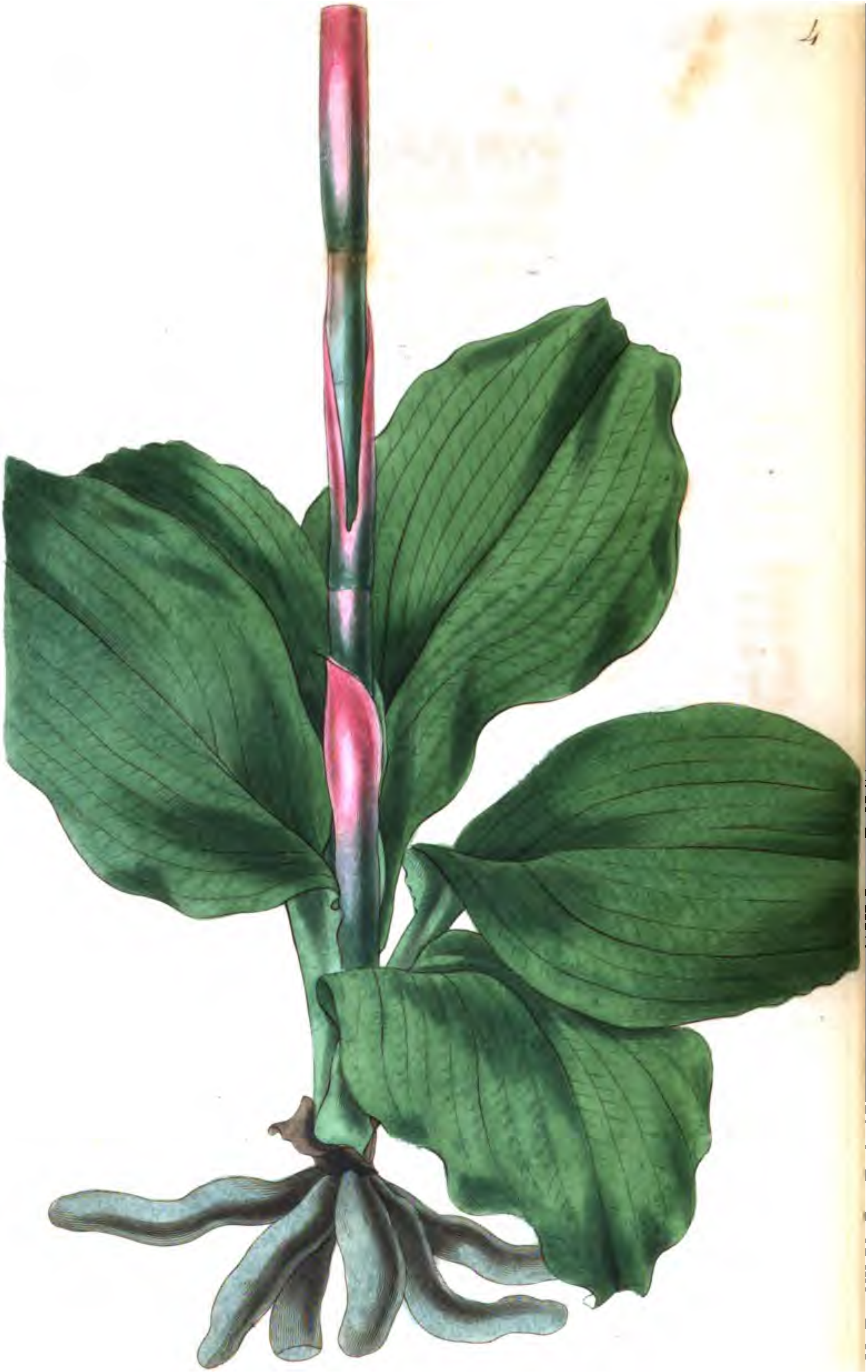
Neottia speciosa

4



Neottia speciosa.

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3, 4

NEOTTIA SPECIOSA.

Showy Neottia.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

GEN. CHAR.—*Cor* ringens: petalis exterioribus, anticis labello imberbi suppositis; interioribus conniventibus. *Columna* aptera. *Pollen* farinaceum. *Br.*

Neottia *speciosa;* labello lanceolato indiviso, scapo bracteato, bracteis flore longioribus, fòliis oblongis margine apicem versus undulatis.—*Willd.*

Neottia speciosa, WILLD. *Sp. Pl.* v. iv. p. 72.—ANDR. *Bot. Rep.* t. 3.—*Bot. Mag.* t. 1374.—AITON, *Hort. Kew.* ed. 2. vol. v. p. 198.

Root composed of several fasciculated fibres, each nearly as thick as the little finger, and flexuose; from the crown of these rise 5 or 6 rather large, broadly ovate, bright green, undulated *leaves,* having a beautiful silky gloss, and marked with longitudinal veins, which are again connected by fainter transverse ones; the lower leaves running gradually down into a sheathing petiole. *Scape* a foot, or rather more, in height, cylindrical at the base, angular above, almost concealed by the large, lanceolate, sheathing, coloured *scales,* which above change gradually into bracteas. *Spike* oblongo-ovate, of numerous, crowded, secund *flowers,* and these as well as the bracteas, by which their length is equalled or sometimes surpassed, are of a fine red colour, changing to rose as they advance in age.

Perianth of 6 nearly equal, oblong, linear-lanceolate *leaflets,* all nearly erect, so as to form an oblong tube, except at the extremity, which is ringent. The three *superior leaflets* are connivent, and united at their extremities; the two *lower* ones are very gibbous at the base, and instead of being lateral, as usual in this family, are placed beneath the *labellum,* almost entirely concealing it, and thus forming one of the essential characters of the genus. *Labellum* pale reddish, almost white, saccate at the base, its sides embracing the lower part of the *column,* its extremity entire, acute, grooved and recurved. *Column* of *fructification* short, white, its under side pubescent. *Anthers* parallel with the *stigma,* long, linear lanceolate, acuminate, 2-celled, and throwing out upon the back of the stigma two long, slender, yellow *pollen-masses,* which are fixed by the extremity to a lanceolate somewhat horny sheathing appendage to the point of the stigma; they are bipartible, composed of minute, farinaceous bodies, connected together in fours. *Germen* linear-oblong, angular, curved. *Stigma* quadrate, viscid, placed in front of the column, and terminating in a long, spear-shaped point.

Figures are not wanting of this truly beautiful, but in our collections not uncommon, orchideous plant. There exist plates of it in ANDREWS' Botanical Repository, and in the Botanical Magazine, and also a most splendid one in the *Plantes Liliacées* of M. REDOUTE'. But in none of these are there any representations given of the flower and its structure, which can convey an idea of the characters which constitute the genus.

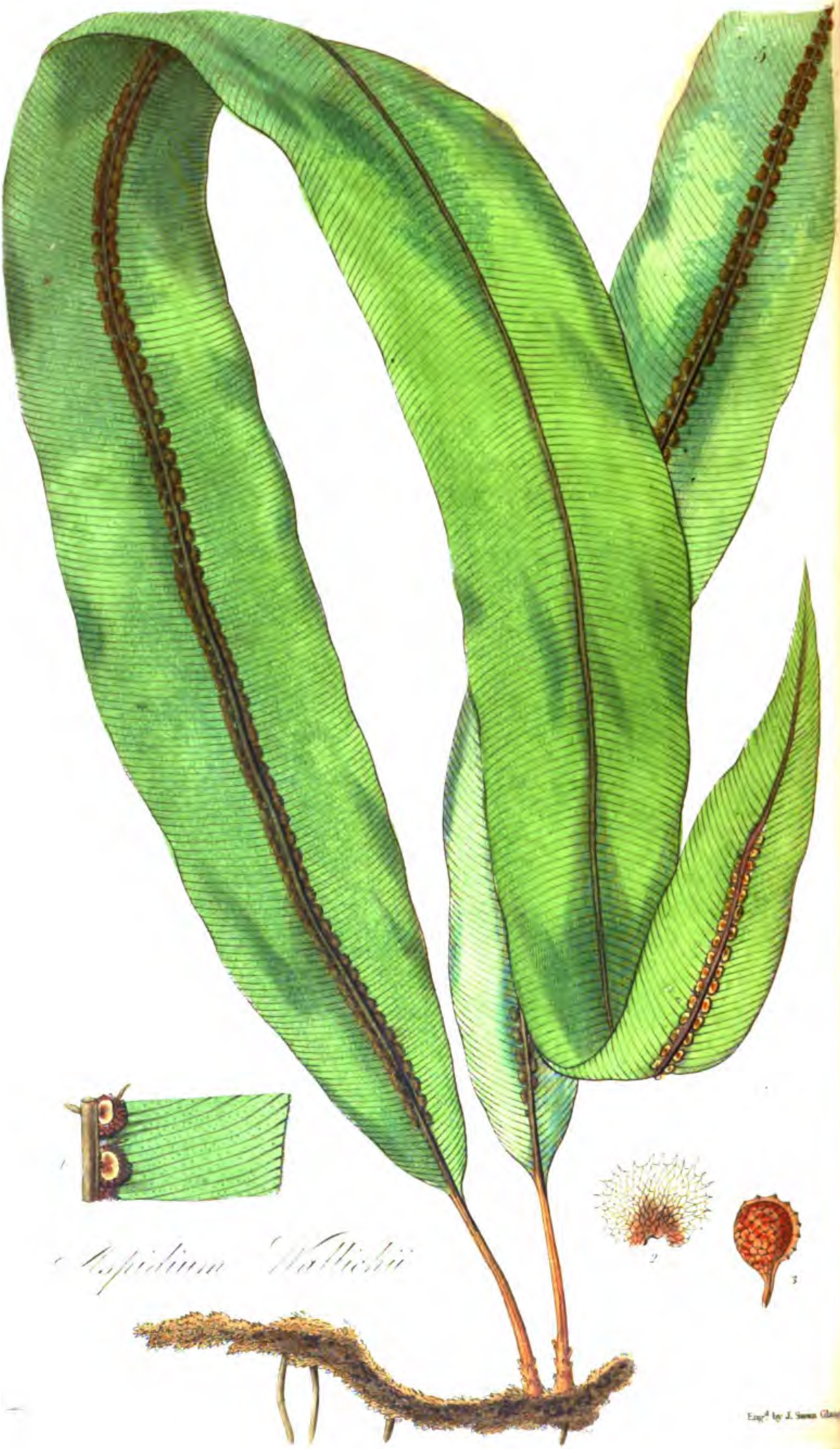
It is a native of the West Indian Islands, and, it appears, also of the Equinoctial part of the Continent of America. It is easy of cultivation in a rich soil, and in the month of January enlivens the bark-pit of the stove with its charming blossoms.

TAB. 3.

A, Spike of flowers, *nat. size.* Fig. 1. Side view of a flower with its bractea. Fig. 2. Back view of the same. Fig. 3. Front view, shewing the anterior segments of the perianth which embrace the lip. Fig. 4. The lip and column of fructification. Fig. 5. Side view of the column. Fig. 6. Back view of the same, the pollen-mass having escaped from the anther, and attached itself by its points to the appendage at the extremity of the stigma. Fig. 7. Front view of the column; *a*, The stigma; *b*, The appendage at the extremity. Fig. 8. Anther cases. Fig. 9. Pollen-mass. Fig. 10. One of the granules of which the pollen-mass is composed.—*All more or less magnified.*

TAB. 4.

Portion of the scape of *Neottia speciosa*, with the leaves and root. *Nat. size.*



Aspidium Wallichii

Engd by J. Swan Glasgow

ASPIDIUM WALLICHII.

Catenulated Shield-Fern.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES.*

GEN. CHAR.—Sori subrotundi sparsi. *Indusium* umbilicatum vel uno latere dehiscens.—*Willd.*

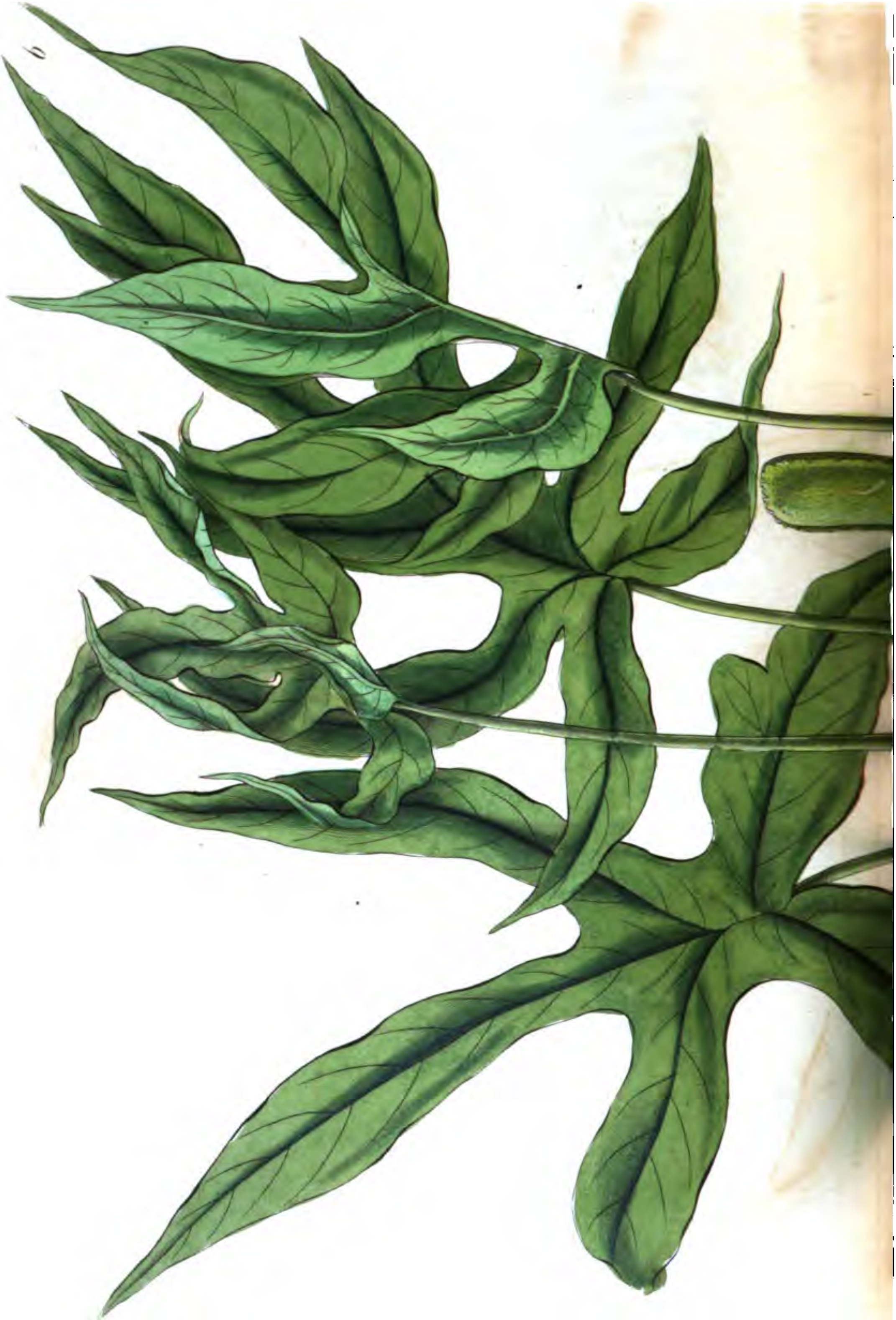
Aspidium *Wallichii;* frondibus simplicibus lineari-lanceolatis, soris rachis utrinque per totam fere longitudinem lineatim dispositis, stipite inarticulato.

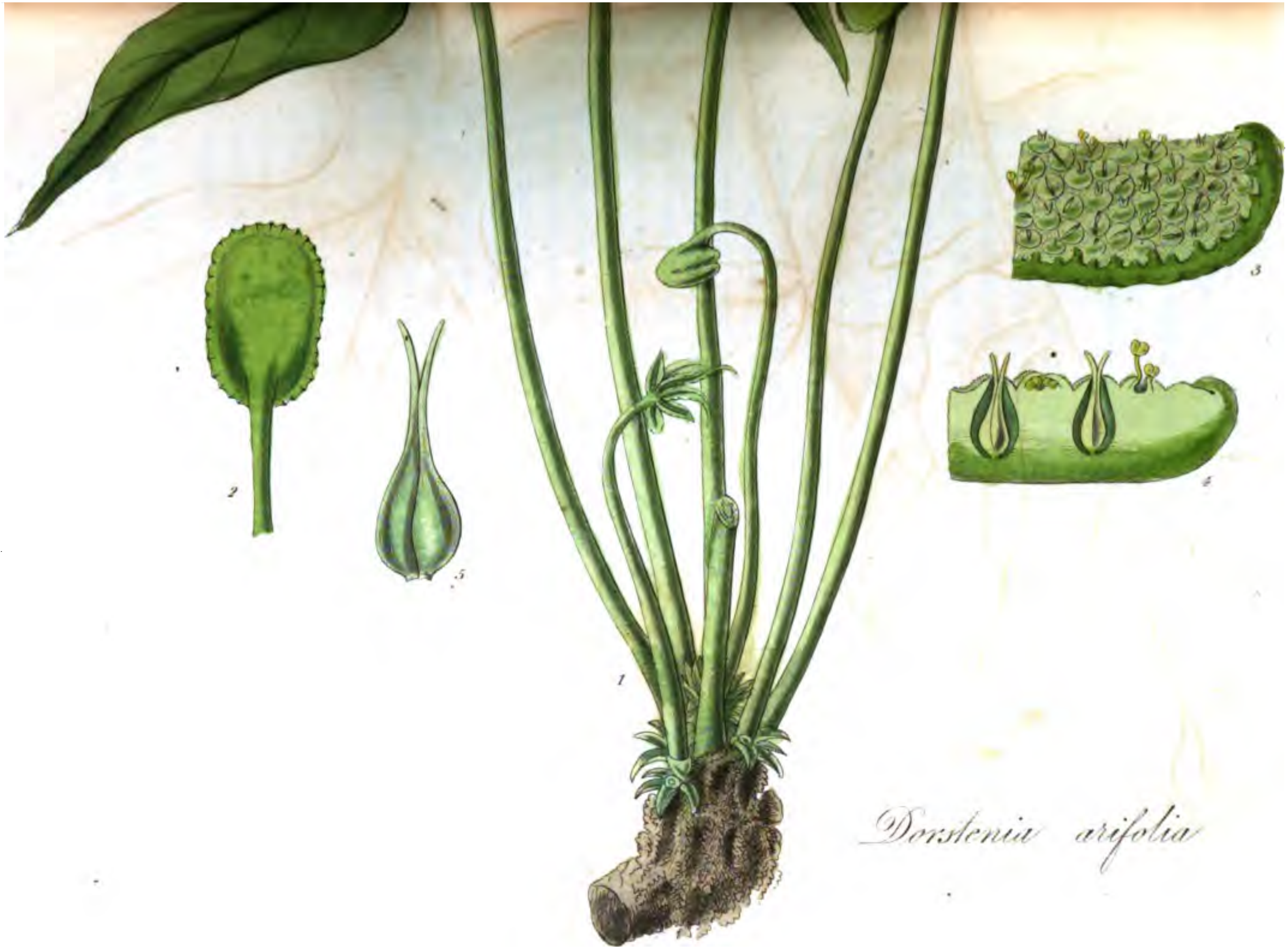
Caudex woody, creeping, covered with numerous brown chaffy scales, and throwing out a few tough, simple, fibrous roots. *Stipes* about 2 inches long, smooth, shining, only bearing a few chaffy scales at the base, jointless. *Frond* from 12 to 14 inches in length, linear lanceolate, of a delicate submembranaceous substance, pale green, tapering at the base, and at the extremity; slightly pubescent, obscurely fringed at the margin, furnished through the centre with a strong midrib or rachis, of a greenish hue, flat above, of a shining purplish black colour and prominent beneath, from which there branch off on each side numerous, closely placed, parallel, almost horizontal, delicate nerves, reaching to the margin, and often forked at the base.

Sori, or clusters of fructification, collected together so closely as to be almost catenulated in two lines, one on each side the rachis, and lying close to it, of a brown colour. *Involucre* a roundish, kidney-shaped, reticulated scale, opening nearly all round, ciliated at the margin. *Capsules* numerous in each cluster, and mixed with a few lanceolate chaffy scales, spherical, pedicellate, reticulated. *Annulus* incomplete.

One of the principal motives which has urged me to undertake the present work, is the opportunity it will give me of publishing some of the many novel and beautiful plants with which my collection is enriched, by the well known liberality of Dr WALLICH, Superintendant of the Botanic Garden at Calcutta. This gentleman's journey into the kingdom of Nepal, aided by the exertions of collectors whom he sends to explore that country, has opened to us a new and almost inexhaustible source of botanical treasures. My work on Exotic Mosses bears testimony to the riches of Nepal in that department; whilst the present one is destined to include many of the Phænogamous Plants and Ferns which I have thence received. Among the latter, splendid as many of them are, few will be found to exceed the present in delicacy; and none can, as a species, be more distinct. It belongs to a division of the genus (frondibus simplicibus), in which only three individuals had been hitherto included, all of them distinguished also by their articulated or jointed fronds. This last circumstance is wanting in *Aspidium Wallichii*, besides which it has the clusters of fructification catenulated, and running down on each side of the midrib,—characters which might perhaps authorise its being constituted a new genus. The term " *scattered* sori," (or clusters of fructification), is hardly applicable to the present species; that expression, as constituting part of the generic distinction, having been intended to be placed in opposition to those *sori* which were marginal, or to those covering an entire portion of the frond.

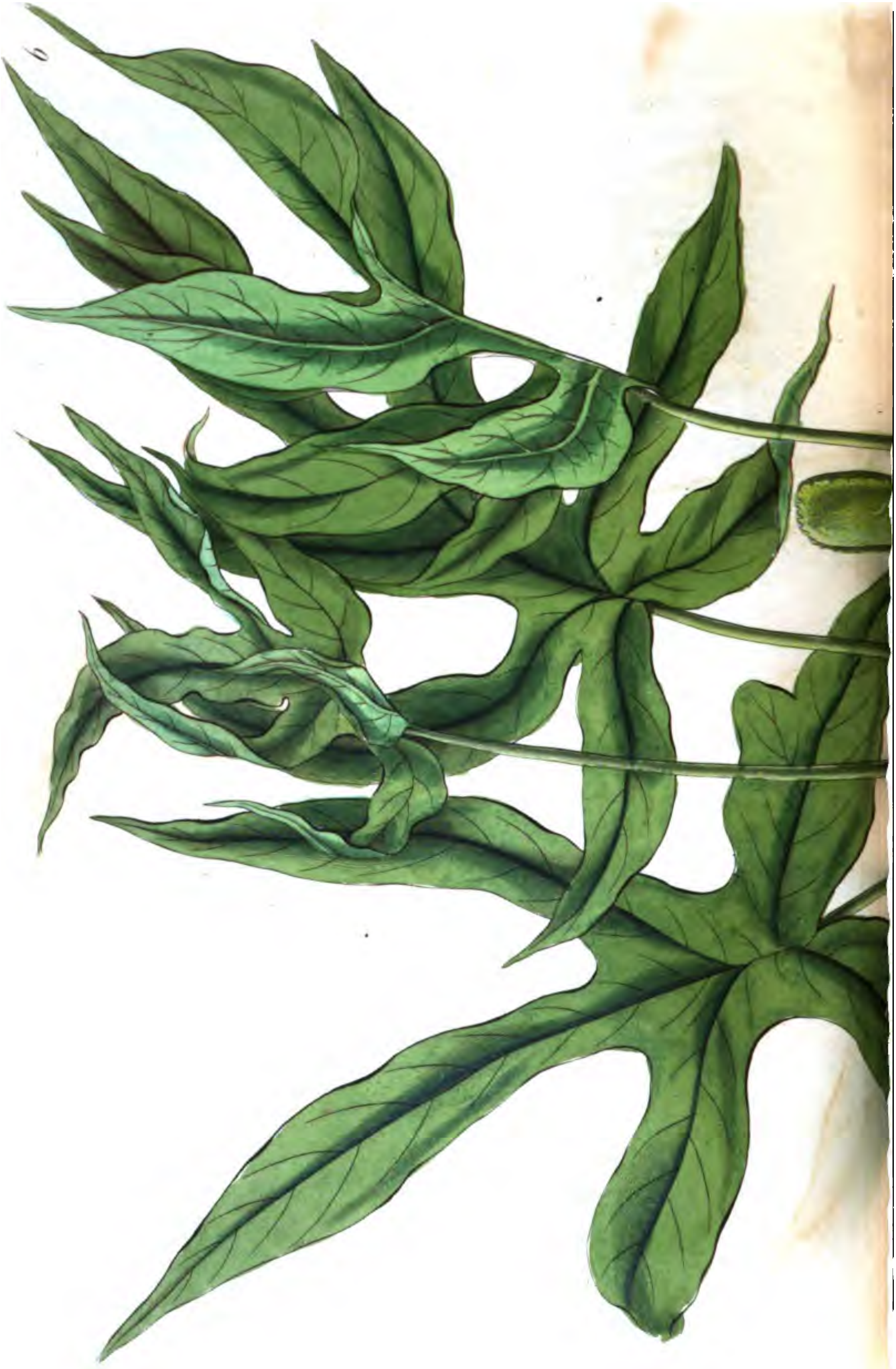
Fig. 1. Portion of the frond slightly magnified, with 2 clusters of fructification, covered in part with their involucres. Fig. 2. Involucre; and, Fig. 3. Capsules, highly magnified.

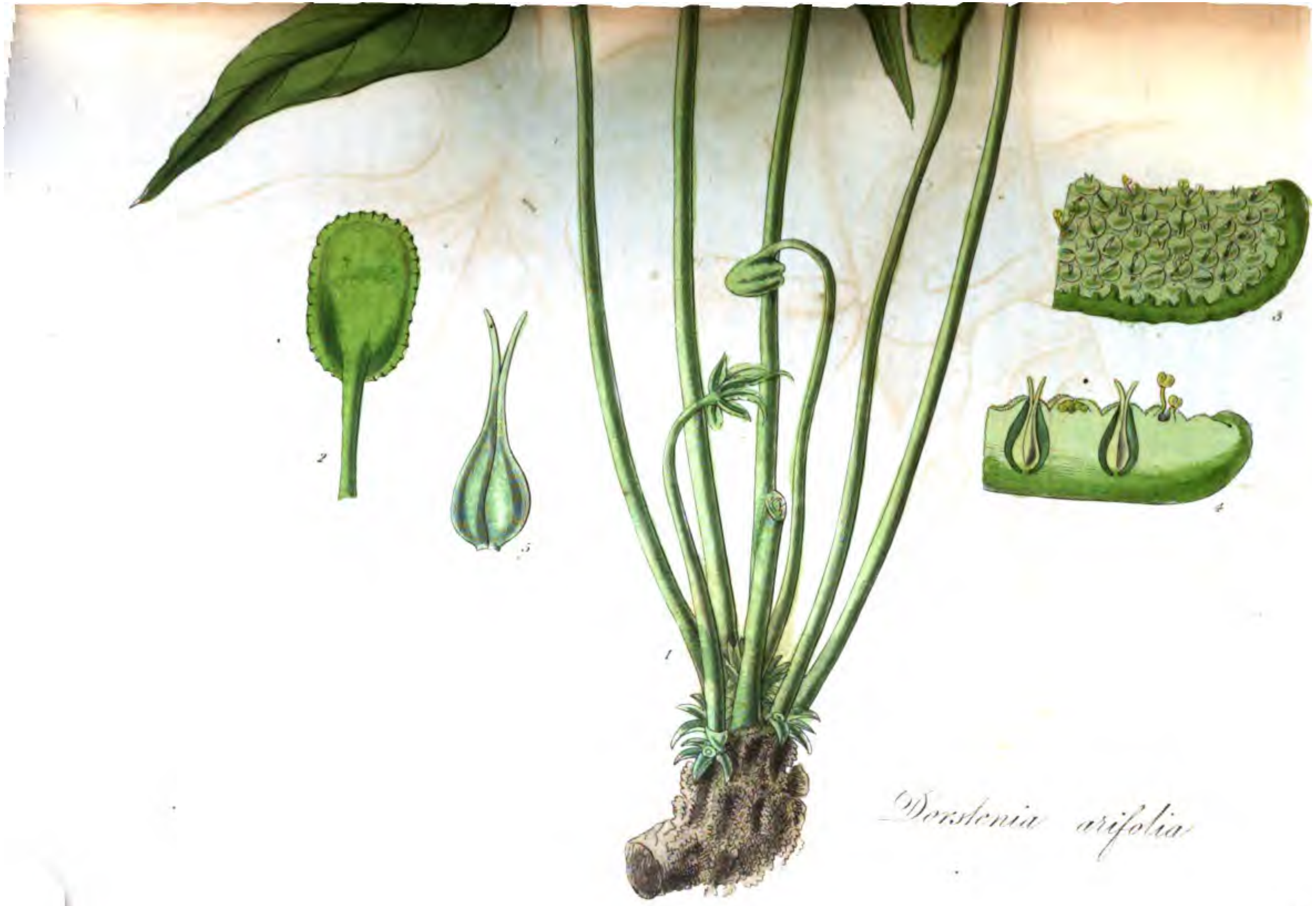




Dorstenia arifolia

Engd by J. Swan Glasgow





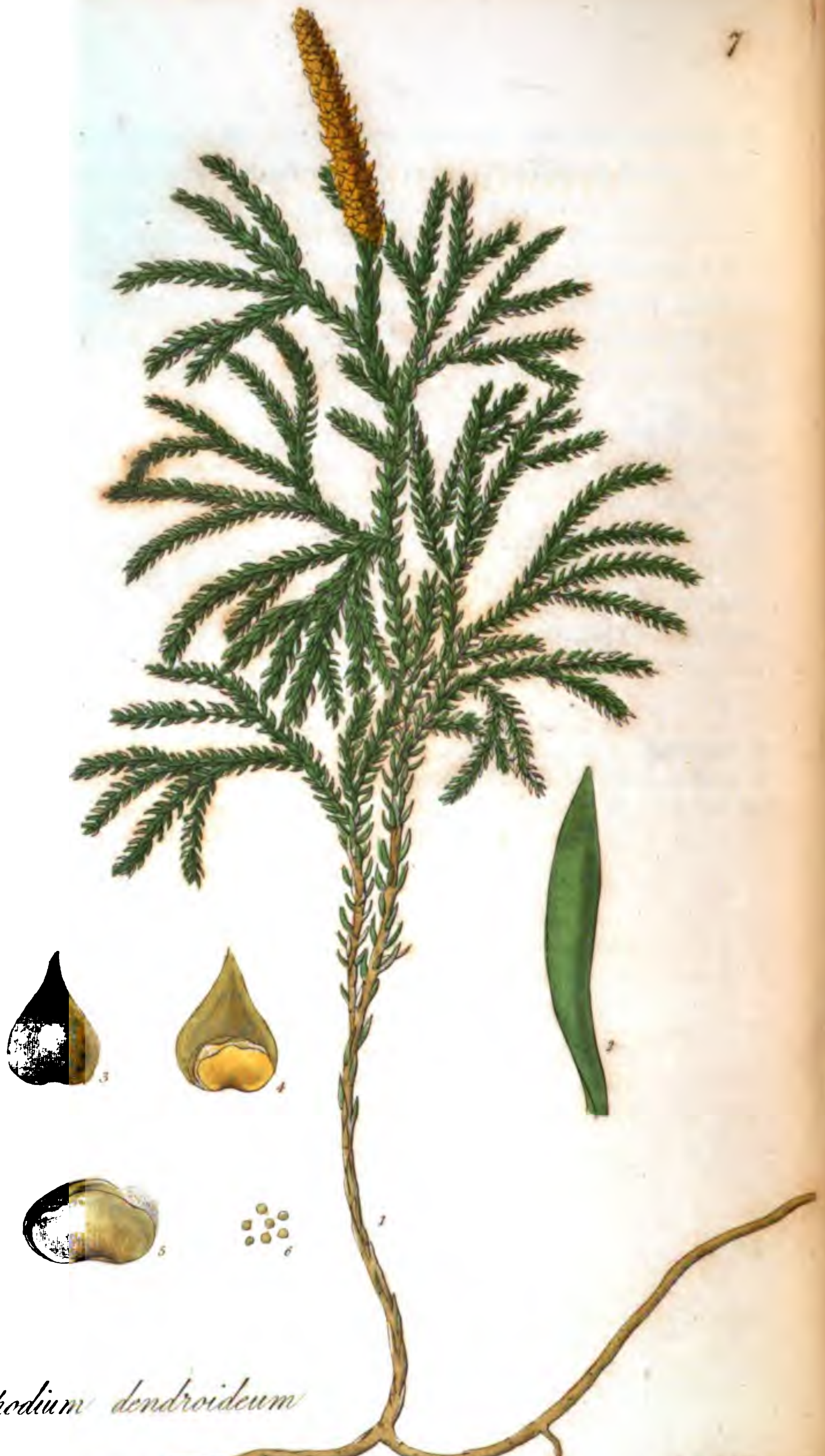
Dorstenia arifolia

Engd by J Swan Glasgow

Illustrations, t. 83. It is there, however, only represented with cordate and undivided leaves; yet is described as having them sometimes deeply cut into many short segments; and what satisfies me more than any thing about the identity of the two individuals, is the fact observed by Mr HENRY SHEPHERD of Liverpool, (to whom I am indebted for the opportunity of figuring this rare plant), that the first leaves are always cordate and undivided, afterwards they are all as represented in the annexed specimen. It is a very handsome plant, vying in size, form, and beauty of foliage, with some of our large tropical *Polypodia*, and equally deserving a place in every stove. It is, however, at present, I believe, extremely rare, having been described, as far as I can find, by no author but LAMARCK, from specimens gathered in the Brazils by DOMBEY. It was introduced, as Mr H. SHEPHERD informs me, into the Botanic Garden at Liverpool, from that country in 1820, by Mrs ARNOLD HARRISON of Aegsburgh, near Liverpool.

Fig. 1. Plant reduced to one-half of its *natural size*. Fig. 2. Back view of a receptacle of flowers. Fig. 3. Portion of the upper surface, or disk, of the receptacle. Fig. 4. Section of the same, shewing the male and female flowers. Fig. 5. Pistils, *magnified*.

7



Lycopodium dendroideum

Engd by J. Swan Glasgow

7

LYCOPODIUM DENDROIDEUM.

Tree-like Club-moss.

CRYPTOGAMIA STACHYOPTERIDES, *Willd.*—NAT. ORD. *LYCOPODINEÆ*, *Brown.*

GEN. CHAR.—*Capsulæ* uniloculares, axillares, sessiles, aliæ bivalves, farina repletæ, aliæ 2–3 valves, corpusculis 1–6 globosis,—*Br.*

Lycopodium *dendroideum*; caule erecto inferne denudato, superne ramoso, ramis alternis dichotomis patentibus, foliis lineari-lanceolatis subsexfariis patulis, spicis solitariis terminalibus sessilibus.

L. dendroideum, MICH. *Fl. Bor. Am.* v. ii. p. 282.—SWARTZ, *Syn. Fil.* p. 178. —WILLD. *Sp. Pl.* v. 5. p. 21.—SCHKUHR, *Fil.* t. 164.—AITON, *Hort. Kew.* ed. 2. v. 5. p. 493.—DILL. *Musc.* t. 67.

L. obscurum, LINN. *Sp. Pl.* p. 1566.

Root much creeping, and throwing out stiff, wiry fibres. *Stem* about 6 or 8 inches high, at the base undivided, and with very few appressed leaves; upward much branched, with the branches spreading, slightly and gracefully curved back, opposite, and again frequently divided in a dichotomous manner. *Leaves* a beautiful bright green, shining, mostly arranged in 6 rows, linear-lanceolate, entire, spreading, but slightly incurved, decurrent at the base. *Fructification* in single cylindrical sessile spikes from the extremities of the stem or branches, at first yellow-green, soon becoming yellow-brown, and formed of numerous imbricated, cordate, membranaceous scales, having within them a bivalved, reniform, coriaceo-membranaceous capsule, of one cell, and containing numerous minute, spherical, yellow, sporules.

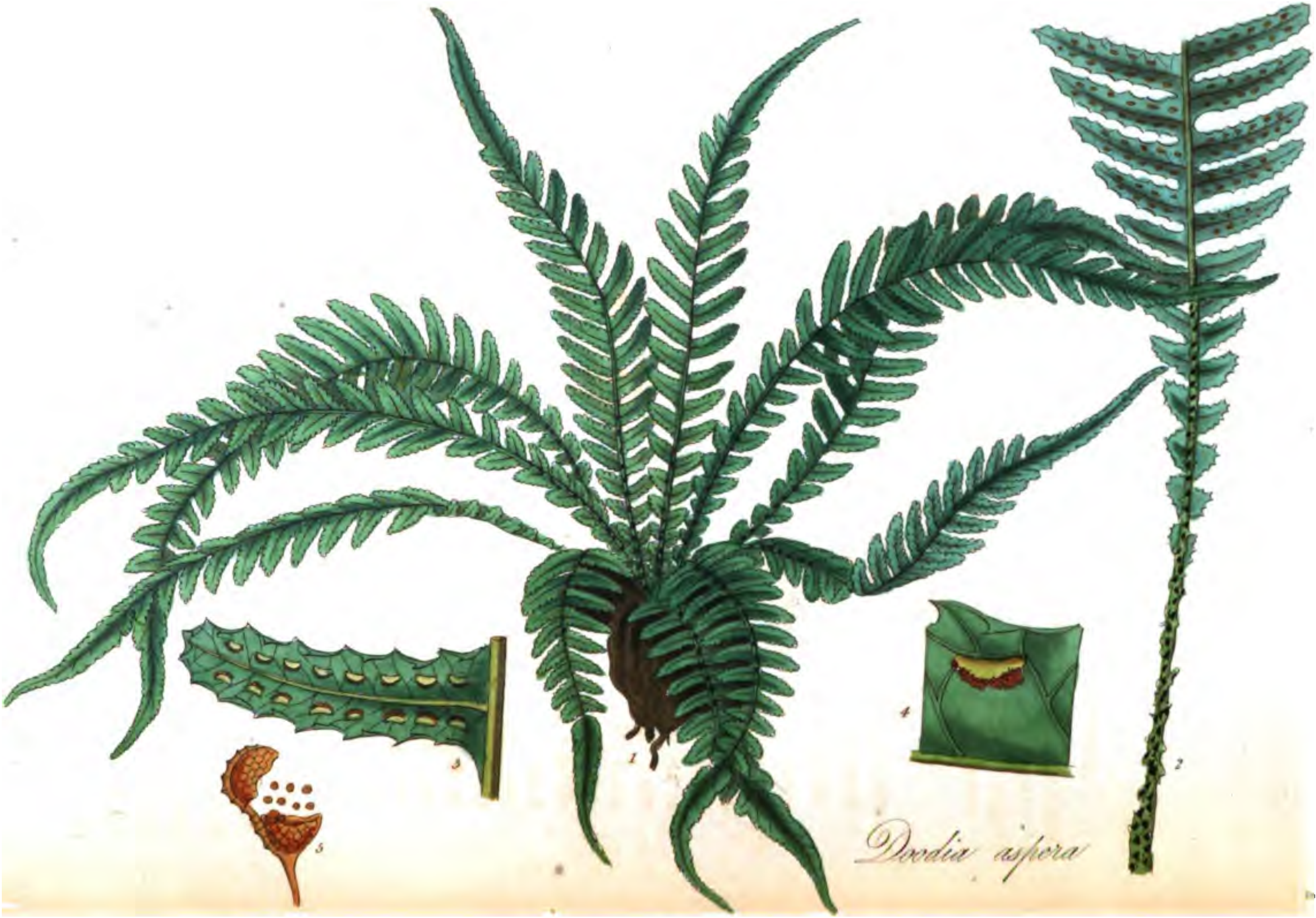
This elegant species of *Lycopodium* seems to be very common in North America, according to MICHAUX, from Canada and New England to the mountainous parts of Carolina. It well deserves a place in every garden, being hardy, according to Hortus Kewensis; although, in our collection, it has been found to succeed best in a cool but airy part of the greenhouse.

We have abundant dried specimens from Mr GOLDIE, gathered at Montreal: our living ones were sent from the same country by Mr KIPPIN.

Its upright tree-like mode of growth is unusual among the genus, and this species seems to hold the same rank in it as the splendid *Hypnum Menziesii*, *H. dendroideum*, &c. among the Mosses, do with the rest of that genus.

Fig. 1. Plant, *natural size*. Fig. 2. Leaf. Fig. 3. Scale of the spike of fructification. Fig. 4. Scale with its bivalved capsule. Fig. 5. Capsule separated from the scale. Fig. 6. Seeds.—*All but* Fig. 1. *more or less magnified.*

8



Doodia aspera

[illegible]

DOODIA ASPERA.

Rigid Doodia.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES*, DIV. GYRATÆ, *Br.*

GEN. CHAR.—*Sori* lunulati vel lineares, seriati, costæ paralleli. *Involucrum* e ramulo anastomosante venæ ortum, planum, intus liberum.—*Br.*

Frondes cæspitosæ, pinnatæ, pinnis dentatis quandoque coadunatis. *Sori* interdum biseriati.—*Br.*

Doodia *aspera;* frondibus lanceolatis pinnatifidis, laciniis lineari-ensiformibus acuminatis spinuloso-serratis, soris lunulatis, distinctis, passim biseriatis, stipite rachique asperis.—*Br.*

D. aspera, BROWN, *Prod. Fl. Nov. Holl.* p. 151.

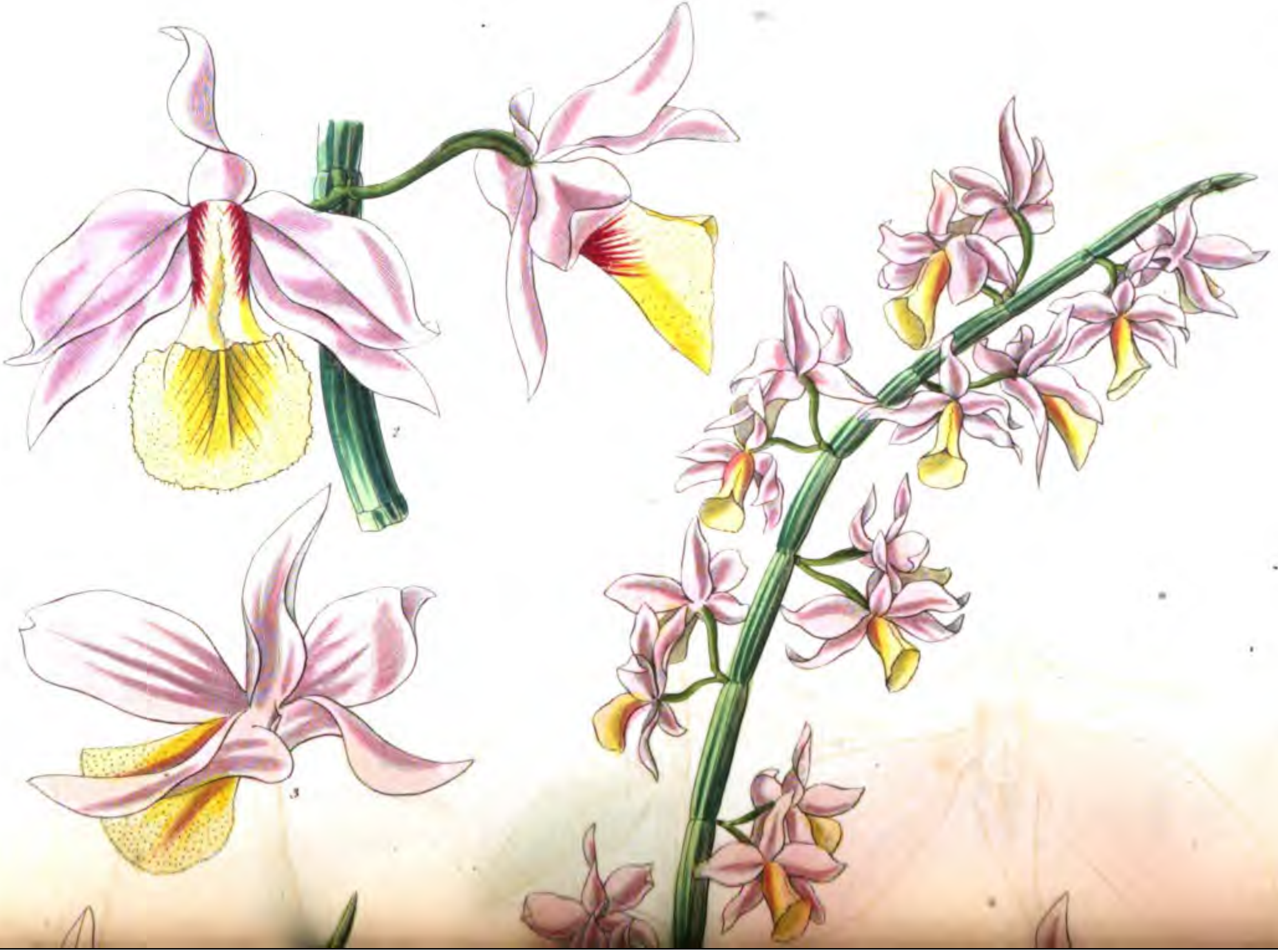
Every part of this plant is singularly rigid. The *fronds*, about 8 inches in length, grow in a tufted manner, but spreading out with their extremities in all directions; their form is lanceolate, attenuated at the base and at the extremity, terminating below in a short *stipes*, beset with stiff, hard, black, mostly reversed scales, as is the back of the rachis, dark green: these *fronds* are deeply pinnatifid, the *pinnæ* or segments linear-ensiform, the terminal one thrice as long as the rest, all with a central rib and many nerves branching off from it, which ramify and anastomose with each other; the margins spinuloso-serrate, and nearly every other spinule reflexed. *Sori, or clusters of fructification*, oblong, bursting from a branch of the veins which runs parallel with the central rib, and is about half-way between it and the margin. *Involucre* lunulato-oblong, plane, opening internally, and then exhibiting a number of spherical, reticulated, annulated, and pedunculated capsules. *Seeds* spherical.

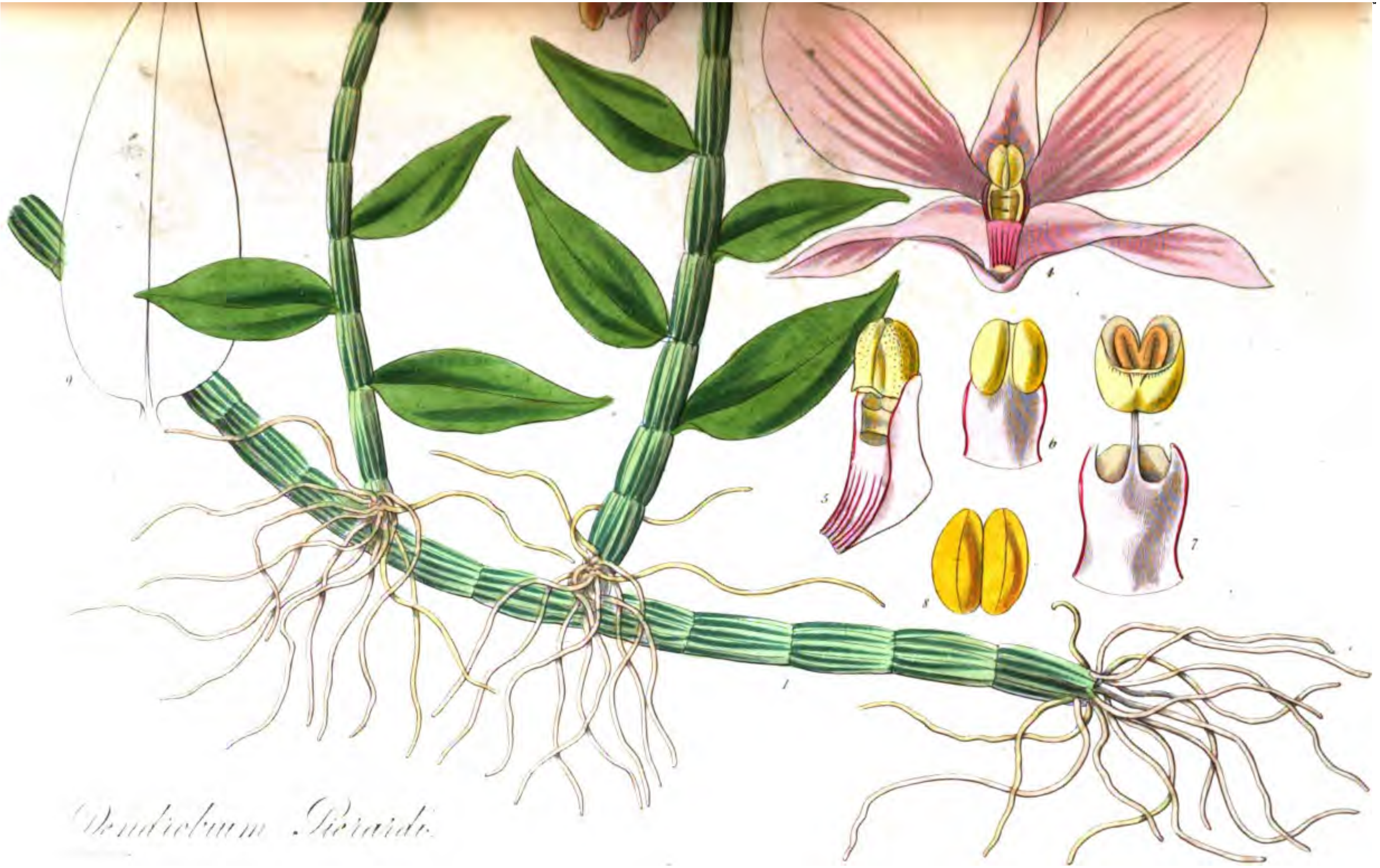
The genus *Doodia* is peculiar to New Holland, and was named by our learned countryman Mr BROWN, in honour of SAMUEL DOODY, one of our earliest investigators of Cryptogamic Plants. One of its species, *D. caudata*, has been arranged by CAVANILLES and WILLDENOW under *Woodwardia*, from which the present genus differs in its plane (not fornicate) involucre, unconnected at its inner margin, and arising from an anastomosing or connecting branch of the veins. Three species are described by Mr BROWN.

The specimen from which the accompanying figure was taken, flourishes in the green-house in peat-earth, but is increased with difficulty. It was communicated to our collection by our liberal friend Mr SHEPHERD of Liverpool.

Fig. 1. Plant, *one-half* of the *natural size*. Fig. 2. Portion of a frond, *natural size*. Fig. 3. Segment of a leaf. Fig. 4. Portion of a segment, with a cluster of fructification. Fig. 5. Capsule and seeds, *magnified*.

9





Dendrobium Pierardi.

9

DENDROBIUM PIERARDI.

Splendid Dendrobium.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

GEN. CHAR.—*Labellum* ecalcaratum, articulatum cum apice processus unguiformis, cujus lateribus petala antica adnata, calcar æmulantia. *Massæ pollinis* 4, parallelæ.—*Br.*

Dendrobium *Pierardi;* caulibus pendulis superne nudis foliis bifariis late lanceolatis, pedunculis sub-bifloris, labello indiviso tubiformi, ore dilatato obliquo, perianthii foliolis tribus exterioribus basi obtuse calcaratis.

Dendrobium Pierardi, ROXBURGH's *MSS. with a figure.*

Stems, in their native country, pendent from the trunks of trees, and reaching (according to Dr CAREY, in a note which accompanied the individuals sent by him to the Liverpool Garden in 1819,) to 6 feet in length, cylindrical, much branched, with the branches tapering, fleshy and rigid jointed, green, and each joint seems to be covered with a whitish, pellucid, membranous sheath, marked with still more decidedly white lines, giving the whole an elegantly striated appearance. From various parts of the joints, particularly at the setting on of the branches, numerous bundles of whitish succulent roots are thrown out, which float in the atmosphere, or attach themselves slightly to whatever may come in their way. The *leaves* appear to be confined to the lower parts of the branches, springing from the joints, alternate, horizontal, bifarious, broadly lanceolate, about 3 inches long, thick and succulent, dark green, with longitudinal lines or nerves.

From the *joints,* almost immediately above the termination of the leaves, appear the *flowers,* in a lax raceme, almost constantly in pairs, (in ROXBURGH's figure occasionally in threes), from short *footstalks,* alternate, bifarious, large, and very handsome.

Leaflets of the Perianth all nearly equal in length, the 5 *superior* ones are pale rose-colored and spreading, the three outermost narrow, lanceolate, united at the base around the top of the *germen,* their 2 lateral ones forming an obtuse pouch, which extends a quarter of an inch; 2 inner ones large oblong, faintly marked with lines. *Labellum* springing from the inside of the pouch, one inch and three-quarters long, pale sulphur-coloured, with some oblique, bright purple lines near its base. The *margins* are ciliated, and for the greater part of the length are curved up and meet, so as to form a tube; the mouth, however, is much expanded, so that the whole *labellum* is nearly trumpet-shaped, slightly depressed, and oblique at the mouth, veined, and pubescent within.

Column of fructification short, and wholly concealed within the tube, very broad at the base, and appearing to unite all the divisions of the perianth, white, tinged and veined with deep rose colour, plane or slightly grooved in front, semicylindrical behind. *Anther* ovate, white, 2-lobed, ciliated in the lower edge, moveable, separating horizontally, and remaining attached; united to a filiform process, which runs along a groove on the back of the anther, and by means of which it is fixed to the top of the back of the column: within, it contains 2 cells, each furnished with an elevated line, or imperfect septum, and each containing 2 *pollen-masses* of an ovate form, and double, or formed of 2 portions, yellow, waxy. *Stigma* in front of the column, just below the anther. *Germen* very long, slender, slightly twisted, resembling a pedicel.

Well, indeed, might Dr Carey, who introduced this plant to our gardens, say, that "it is one of the most beautiful vegetables in the world," when we consider, that its numerously ramified stems, which, in their native country, attain a length of 6 feet, are covered with a mass of blossoms, of such loveliness, as the annexed figure can convey a very imperfect idea. It thrives, however, well in our gardens, treated in the same manner as the more common parasitic *Orchideæ;* and the specimen from which the reduced sketch (kindly communicated, as well as living plants, by Mr H. Shepherd,) was taken, had reached the length of 14 inches, and had 16 flowers upon it, all expanded at the same time.

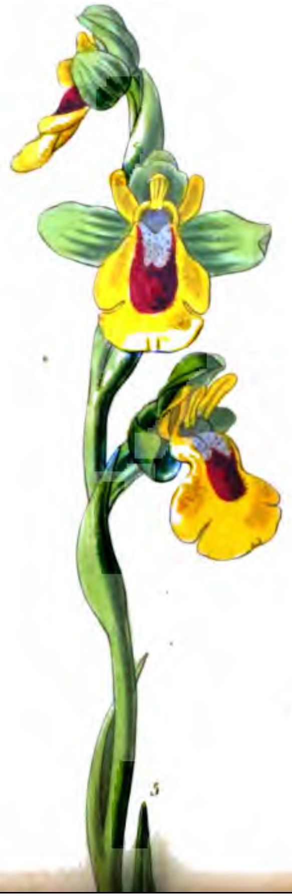
A very accurate delineation of this species exists among the drawings belonging to the East India Company sent over by Dr Roxburgh, and which I had the opportunity of seeing when in the possession of Sir Joseph Banks some years ago; and a slight sketch taken from which, is now lying before me. It there stands under the name of *Dendrobium Pierardi*, having been discovered by M. Pierard upon trees in the Delta of the Ganges.

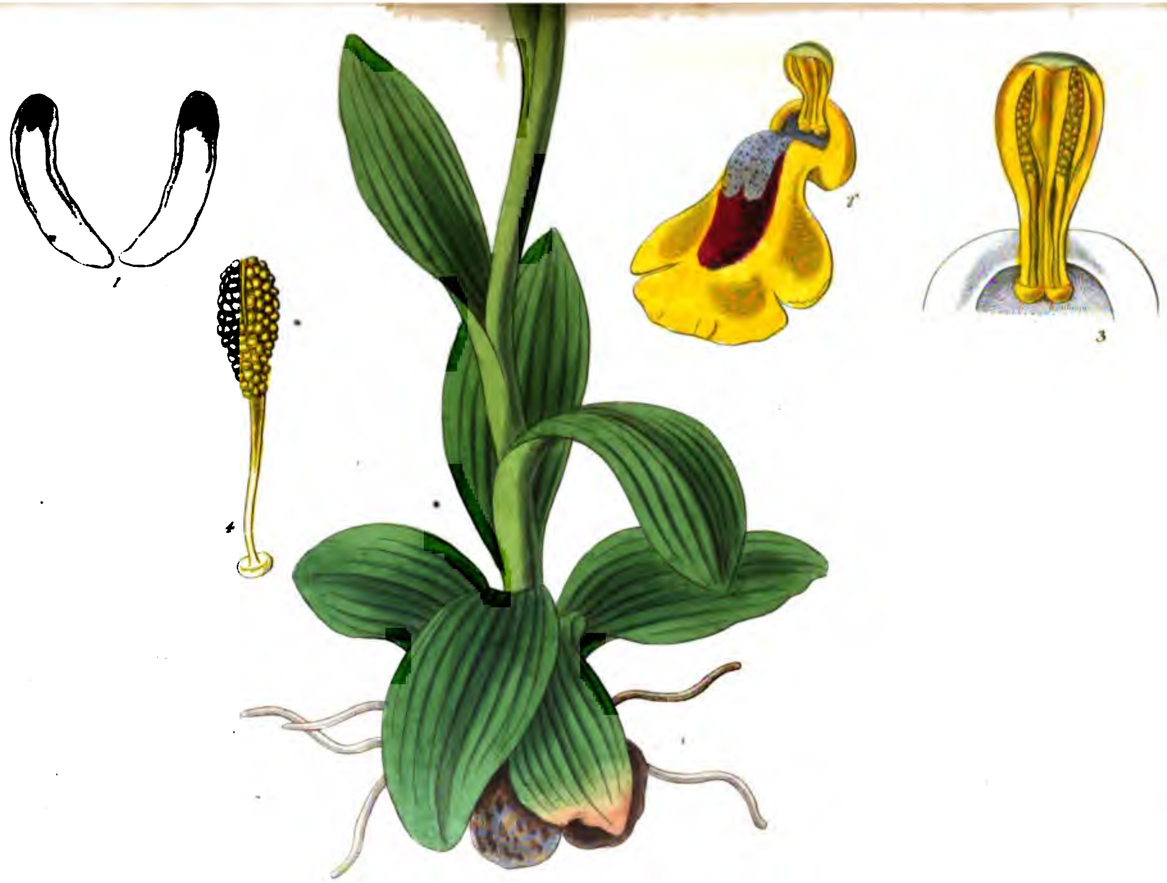
A plant, very nearly allied to the present one, is figured both in the Botanical Register (No. 548.), and Botanical Magazine (No. 2242.), under the name of *D. cucullatum*, but it is inferior to the *D. Pierardi*, both in the size and beauty of its flowers, which also grow opposite to the leaves, and have a labellum of a very different shape. The stem, the figure of the leaves, and general structure of the inflorescence, are remarkably similar.

It blossoms in the month of April in the stove of the Liverpool Garden. A fine young plant which we have in the Glasgow Botanic Garden has not yet produced flowers.

Fig. 1. Portion of a plant, reduced to half the natural size, from a sketch of Mr H. Shepherd. Fig. 2. Two of the flowers, *nat. size.* Fig. 3. Back view of a flower cut off from the top of the germen. Fig. 4. Front view of a flower, the lip being cut away. Fig. 5. Front view of the column of fructification. Fig. 6. Back view of ditto. Fig. 7. Back view of a column, the Anther-case having sprung from the summit, but remaining attached to its filament; the Pollen-masses, Fig. 8. being discharged,—*all from* Fig. 3. *more or less magnified.* Fig. 9. Leaf, *nat. size.*

10





Ophrys lutea

Eng^d by J. Swan Glasgow

10

OPHRYS LUTEA.

Yellow Ophrys.

GYNANDRIA MONANDRIA.—Nat. Ord. *ORCHIDEÆ.*

Gen. Char.—*Corolla* subpatens. *Labellum* ecalcaratum. *Glandulæ pollinis* cucullis distinctis inclusæ.—*Br.*

Ophrys *lutea;* labello trilobo, lobo medio productiore rotundato emarginato mutico, perianthii laciniis tribus exterioribus late ovatis petentibus, duobus interioribus minutis.

O. lutea, Cavan. *Ic.* v. ii. p. 46. t. 160. (fide Willd.)—Willd. *Sp. Pl.* v. iv. p. 60.—Biv. Bern. *Sicul. Pl.* cent. 2da, p. 40. t. 5.

Root of 2 rounded tubers, with a few fibres proceeding from near the summit. _Stem_ about 8 inches in height, cylindrical, flexuose, leafy; _leaves_ oblong, spreading, obtuse, striated, the upper ones narrower, lanceolate, erect, and gradually passing into bracteas.

Flowers about 3, from the extremity of the stalk, each accompanied by a lanceolate bractea, about as long as the germen. The outer divisions of the perianth are nearly alike, broadly ovate, concave, green, spreading; the two inner ones linear, oblong, small, yellow, glabrous, almost erect; the _labellum_ or _lip_ large, pendent, broadly ovate, obtuse, the sides and extremity glabrous, a little deflexed, the centre prominent, of a fine velvety brown, with a double greenish spot at the base; the lip is 3-lobed, the 2 lateral lobes the smallest, the extreme one protruded, broad, so as to leave a very narrow sinus on each side, rounded, and slightly notched in the middle, with a small swelling or elevation.

Column of fructification short. _Stigma_ roundish, margined, yellow. _Anther_ from the upper margin of the stigma, clavate, green at the back, yellow in the front, 2-celled, with the base of the cells distinct, rounded. _Pollen-masses_ 2, distinct, each clavate, bipartible, with the glandular base of the pedicel of each inserted in a distinct pouch of the anther. _Germen_ oblong, twisted.

Of this curious genus, which is so well defined by Mr Brown, we have three species, indigenous to the warmer parts of Great Britain, but which, beautiful as they are, must yield to the present individual, which inhabits the still more southern countries of Europe.

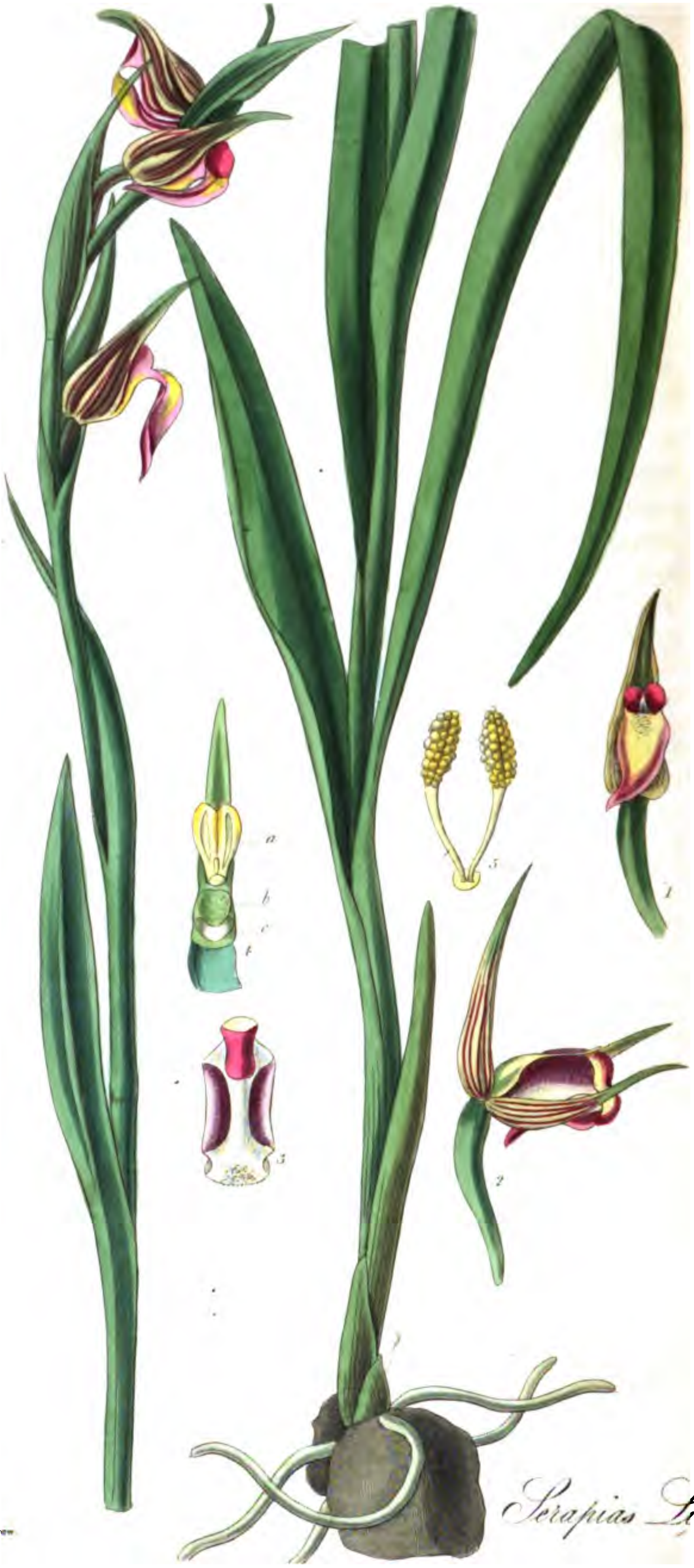
Tournefort seems to have paid great attention to this tribe of plants during his voyage to the Levant, and has caused several of them to be drawn upon vellum, by that admirable artist Aubriet, who accompanied him as a botanical draughtsman. These figures form a part of the splendid Vellum Collection, as it is called, of Natural History, begun under the auspices of Gaston, Duke of Orleans, brother of Louis XIII. and continued to the present time at the expence of the French Government. Five new species, taken from those drawings, are figured and described by Desfontaines in the 10th volume of the *Annales du Muséum d'Histoire Naturelle*. Two of them, the *O. villosa* of Desfontaines (*O. tenthredinifera* of Willd.) and the *O. Speculum*, and, as it would appear, the only exotic true *Ophrides* ever introduced in a living state into this country, were brought by Mr Swainson from Palermo;' and, of these, excellent figures have been given by Mr Gawler in the numbers of the Botanical Register. Tubers of *O. lutea* were received from Gibraltar, by the Botanical Garden here, through the kindness of Captain Dunn of Greenock; and, though inclosed, in a dry state, in a bag of Ranunculus roots, they flowered in the green-house in the succeeding spring.

In a growing state this plant is beautiful, and most resembles *O. iricolor* of the *Annales du Muséum*, v. 10. t. 13. differing, however, from it, in the fewer number of flowers upon its spike, the dissimilar form of the lip, and the yellow, not purple, colour of the blossoms.

Willdenow states it to be a general inhabitant of Spain and Portugal; and Bivona Bernardi of the hills and meadows about Palermo and Catania.

Fig. 1. The small inner segment of the perianth. Fig. 2. Lip and column of fructification. Fig. 3. Upper part of the stigma, with the anther. Fig. 4. One of the pollen-masses.—*All more or less magnified.*

11



Eng^{d} by J. Swan Glasgow

Serapias Lingua

SERAPIAS LINGUA.

Tongue-lipped Serapias.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

GEN. CHAR.—*Corolla* ringens. *Labellum* ecalcaratum. *Columna* cuspidata. *Pedicelli pollinis* inserti glandula unica cucullo inclusa.—*Br. in Hort. Kew.*

Serapis *Lingua;* labello tripartito, laciniis lateralibus obtusis erectis conniventibus, media oblonga lanceolata acutiuscula glabriuscula dependente.—*Willd.*

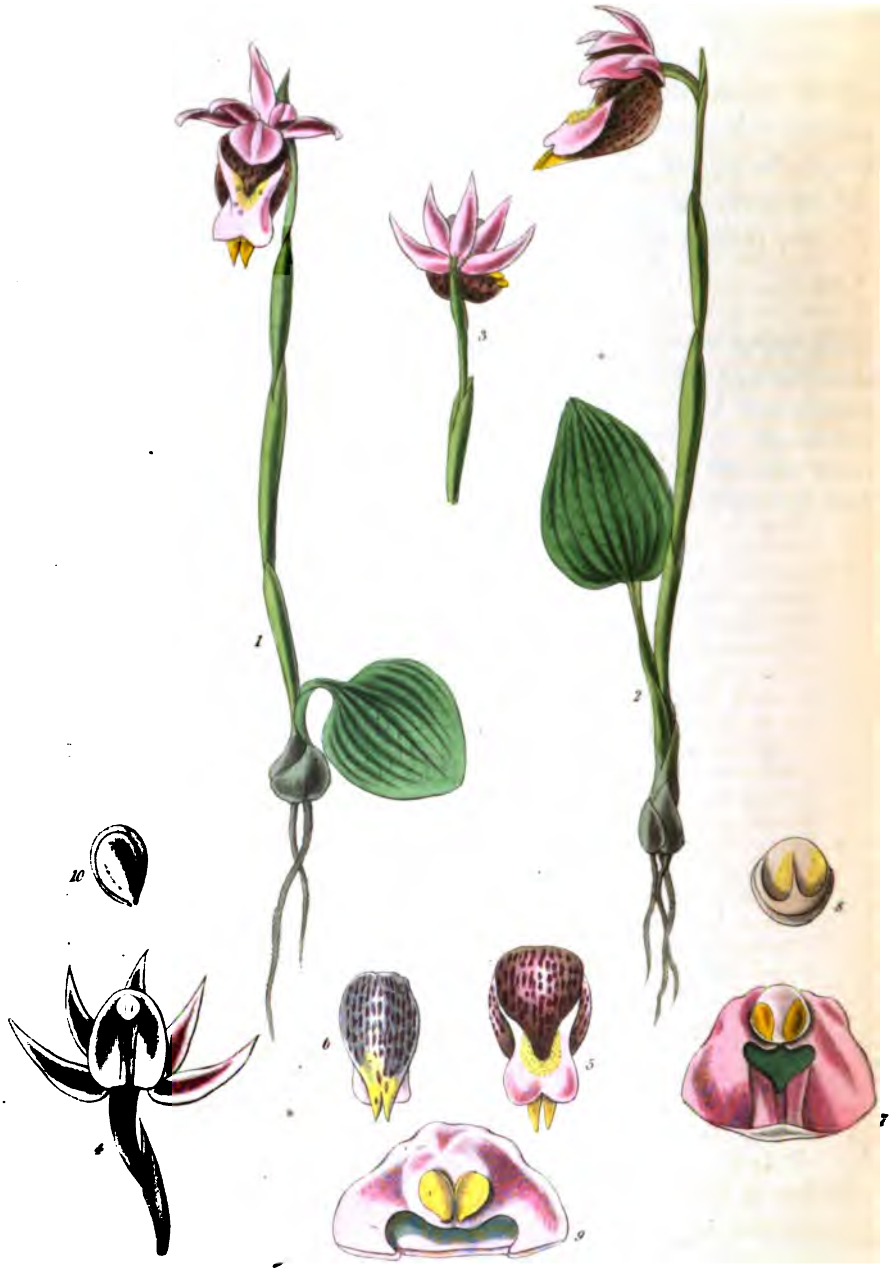
S. *Lingua,* LINN. *Sp. Pl.* p. 1344.—WILLD. *Sp. Pl.* v. iv. p. 70.—AIT. *Hort. Kew.* ed. 2, v. 5. p. 195.

The *root* of this plant consists of one large, nearly spherical, plump and fleshy tuber, with a smaller shrivelled one by its side, and above these a few rather thick, carnose, simple *fibres.* *Stem* 8 inches to 1½ foot high, flexuose, leafy. *Leaves* lanceolate, the middle ones long and narrow, smooth, pale green, obscurely nerved; the uppermost passing gradually into bracteas.

Spike composed of from 2 to 5, or even 8 inclined *flowers,* each subtended by a lanceolate and acuminated, sheathing, purplish-green, large *bractea.* *Perianth* of 5 narrow, lanceolate and much acuminated, connivent, united *leaflets,* the 2 innermost being very narrow, and scarcely separable from the upper one; their colour is a pale yellow-green, with purplish red lines. *Lip* large, and 3-lobed, yellowish-white at its base within, and having, just where it joins on to the receptacle, an oblong, deep purple *tubercle* or *gland* (Fig. 3.), the 2 *lateral lobes* broad, erect and incurved, fine purple colour, almost wholly covered by the galea; *middle lobe* oblongo-ovate, rather acute, pendent, or even reflexed, a little waved, yellowish-white, pubescent at the base, the margin reddish. *Column of fructification* rather lengthened, yellowish-green, running out into a long attenuated point beyond the *Anther.* *Germen* somewhat clavate, not twisted. *Stigma* broadly ovate, viscid, in the front of the column. *Anther* fine yellow, obovate, 2-celled, with one little point at the base, in which is inserted the single *gland,* bearing the 2 yellow *pollen-masses* (Fig. 5.)

The two species of *Serapias, S. Lingua* and *S. cordigera,* have a very close affinity with each other, and are scarcely to be distinguished but by the larger size of the latter, and the broadly ovate middle segment of its lip. I find both plants to be hairy at the base of the lower lip, the *S. cordigera* most so, according to the fine specimens preserved in my herbarium, which were gathered by W. SWAINSON, Esq. at Palermo in Sicily. The same excellent naturalist brought home living plants of *S. Lingua*, which flowered for two successive seasons at the Botanic Garden, Liverpool, in the month of April. It was from these individuals, kindly communicated by Mr SHEPHERD, that the accompanying figure was taken.

Fig. 1. Front view of a single flower, *nat. size.* Fig. 2. A flower partly spread open, two of the leaflets of the perianth being separated from the 3 conjoined ones above, and shewing the column of fructification and lip. Fig. 3. Front view of the lip, removed from the flower. Fig. 4. Column; *a*, The anther; *b*, The stigma; *c*, The scar where the lip was attached. Fig. 5. Pollen-masses, united upon one common gland.



Calypso borealis.

Engd by [illegible]

12

CALYPSO BOREALIS.

Northern Calypso.

GYNANDRIA MONANDRIA.—Nat. Ord. *ORCHIDEÆ*, Div. IV. Anthera terminalis, mobilis decidua. Massæ pollinis demum cereaceæ.—*Br.*

Gen. Char.—*Labellum* ventricosum, prope apicem subtus calcaratum. *Petala* adscendentia, secunda. *Columna* petaloidea, dilatata. *Massæ pollinis* 4.—*Br.*

Calypso *borealis*, Salisb. *Parad. Lond.* n. 89.—Richard, *De Orchid. in Mem. du Mus.* v. iv. p. 60.—Pursh, *Fl. Am. Sept.* v. ii. p. 593.
Calypso *Americana*, Br. *in Hort. Kew.* v. 5. p. 208.—Nutt. *Am. Fl.* v. ii. p. 194.
Orchidium *boreale*, Sw. *in Svensk. Botanik.* t. 518.
Limodorum *boreale*, Willd. *Sp. Pl.* v. iv. p. 123.—Sw. *De Orchid.* p. 85.
Cymbidium *boreale*, Sw. *in Nov. Act. Ups.* vi. p. 76. (fide Willd.)
Cypripedium *bulbosum*, Linn. *Sp. Pl.* p. 1347.

Root a small bulb, sheathed with scales, and throwing out from its base 2 or 3 rather long, and somewhat downy fibres. *Stem* from 4 to 6 inches, or even more, in height, covered, throughout its whole length, with long, cylindrical, membranaceous, brownish-green, sheathing scales, and with one, rather large, ovato-rotund dark-green *leaf*, deeply marked with longitudinal nerves, and somewhat reticulated.

Flower solitary, terminal, drooping, about an inch long. *Peduncle* short, curved, as well as the elongated germen. *Five segments* of the *perianth* lanceolate, rose-coloured, patent, and all curved forward. *Lip* inclined downwards, ovate, remarkably inflated, dingy pink, marked internally with deep purple interrupted lines, externally with obscure ones, open above at the base, the margins reflexed, with a tuft of yellow hairs at the sinus, and running down towards the apex into a broad, pale rose-coloured, spotless 2-lobed *ligule;* beneath this, the lip terminates in a sharp, bifid, yellow point, which is sometimes longer than the ligule, and sometimes scarcely equalling it in length. *Column of fructification* dilated at the margin, into a petal-like form, ovate, convex, rose-coloured, and covering the aperture of the lip. *Anther* seated on a small swelling, just beneath the extremity of the column on the under side, nearly hemispherical, yellow-white, membranaceous, moveable, attached by its base; when fallen away leaving 2 pairs of flattened, yellow, waxy pollen-masses, attached by their narrower extremities. *Stigma* a concave heart-shaped excavation, in part covered by the anther-bearing process.

Bulbs of this truly beautiful and interesting plant were communicated by Mr Kippin, from Montreal to our Botanic Garden in 1821, and from those which blossomed there in the month of March 1822, the accompanying figures were taken.

It is a native of Siberia, near the river Lena, in the 55th degree of North Latitude, according to Gmelin; of Ostrobothnia, according to Linnæus. Mr Menzies found it in Nova Scotia, as did Governor Lewis on the banks of Columbia river. In 1811, Mr Nuttall gathered it, but without flower, on the Island of St Helena, near the outlet of Lake Michigan, in the shade of *Abies canadensis*, attached to recent vegetable soil.

Mr Brown has separated, in the *Hortus Kewensis*, the American state of this plant from the European, and has ascribed to it, " a lip narrowed and subunguiculate at the base, the spur exceeding the lamina or ligule of the lip in length, and the peduncle longer than the germen." The first character is by no means apparent in my living specimens. The second is variable; for though, in the individuals here figured, the spur is longer than the ligule, yet, in some of those in my herbarium, which were gathered by Mr Goldie at Montreal, the ligule rather exceeds the spur in length, and the peduncle is about as long as the germen. I have, for these reasons, ventured again to unite the American species with the European, particularly as it sufficiently well accords with the figure of the latter given by Swartz in the *Svensk Botanik*. The ligule, I should however observe, in Swartz's plate, is represented much larger in proportion than in my specimens, and entire at the extremity.

Smith says, that he has in vain sought for a permanent difference between the American and European plants; and Richard adds, " An Calypso Americana, Hort. Kew. 208. specie differat non satis constat."

The Genus was established by Salisbury, in his beautiful *Paradisus Londinensis*, " from καλυπτω, *to cover*, or *conceal*, not merely alluding to the covering of the stigma, but preserving a poetical analogy between this botanical beauty, so difficult of access, and the secluded goddess, whose isle was fabled to be miraculously protected from the observation of navigators."—Sm. *in Rees' Cycl.*

In Europe, the plant is considered of great rarity. In Canada, especially about Montreal, it appears to be not uncommon.

Its mode of cultivation with us is in pots of peat-earth; and it is sheltered by a frame in winter.

Fig. 1. Plant, exhibiting a front view of the flower. Fig. 2. Ditto, shewing a side view of it. Fig. 3. Back view of a flower, *natural size*. Fig. 4. Front view of a flower, deprived of its lip; shewing the under side of the column. Fig. 5. Front view of the lip, removed from Fig. 4. Fig. 6. Back view of the lip. Fig. 7. Upper extremity of the column, to shew the Stigma and the Anther. Fig. 8. Anther removed from the pollen-masses. Fig. 9. Summit of the column, with its pollen-masses, after the anther is removed. Fig. 10. Two of the four Pollen-masses, *magnified*.

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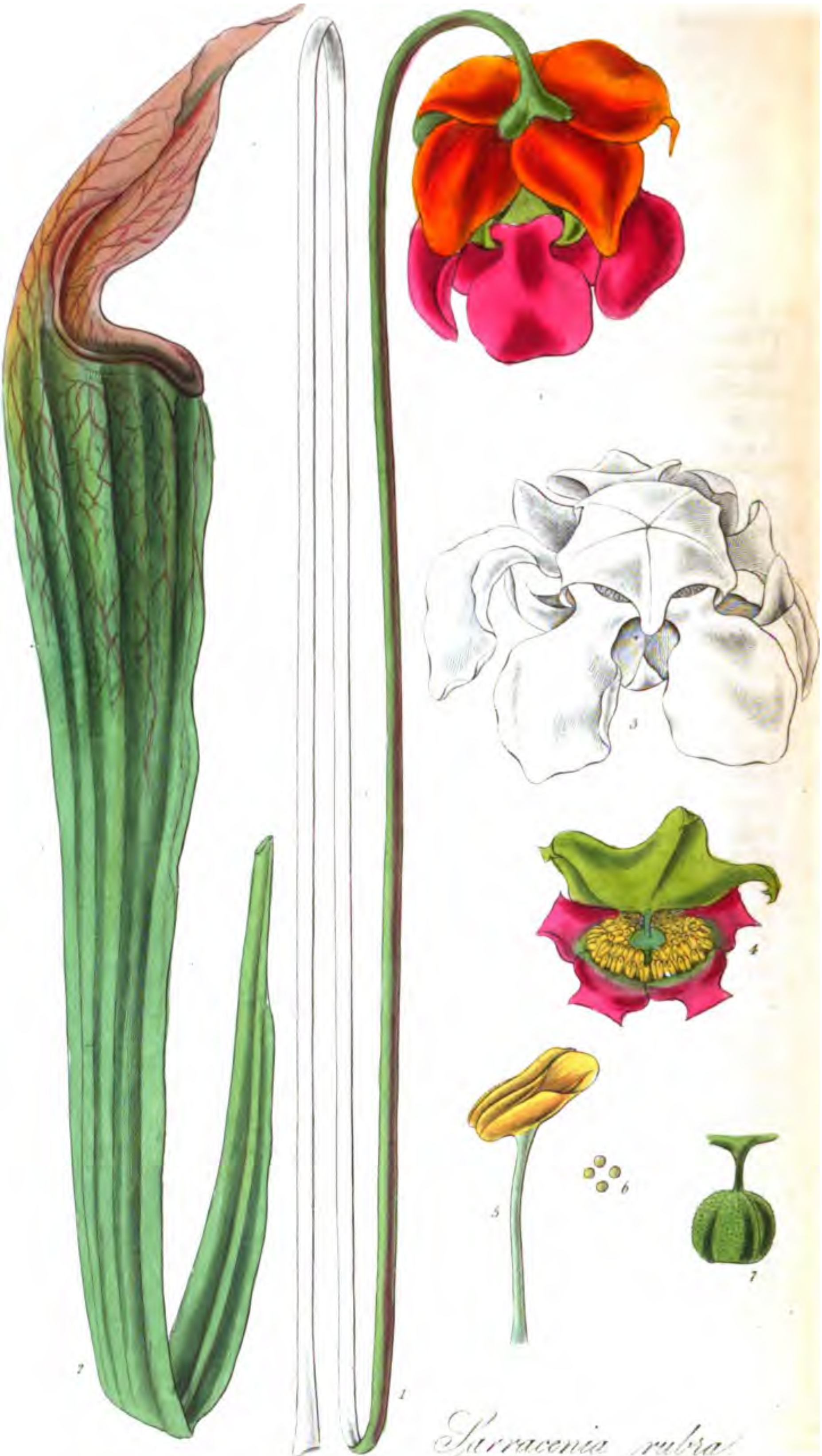

Sarracenia rubra

Engd by J Swan Glasgow

SARRACENIA RUBRA.

Red Side-saddle Flower.

POLYANDRIA MONOGYNIA.—NAT. ORD. *INC. SEDIS*, JUSS.

GEN. CHAR.—*Calyx* duplex persistens; *ext.* minore triphyllo; *int.* pentaphyllo. *Petala* 5, decidua. *Stigma* magnum, clypeatum, pentangulare, persistens, stamina obtegens. *Capsula* 5-locularis, 5-valvis, polysperma, valvis medio septiferis.

Sarracenia *rubra*; foliis scapo brevioribus tubo superne sensim dilatato reticulatim venoso, appendice ovato-acuminata, planiuscula erecta.

S. rubra, WATT, *Carol.* p. 152.—WILLD. *Sp. Pl.* v. ii. p. 1150.—AIT. *Hort. Kew.* ed. 2. v. iii. p. 291.

S. psittacina, MICH. *Fl. Bor. Am.* v. i. p. 311.?—PURSH, *Fl. N. Am.* v. ii. p. 369.?

Leaves radical, 8 or 9 inches long, oblong, gradually tapering from the nearly cylindrical base upwards to the mouth of the *tube*, where it is about an inch and a half in its greatest diameter: it is laterally compressed, of a green colour, marked with longitudinal nerves and connecting reticulated veins, which, in the upper part, are of a purple colour. In the front of the leaf, there runs a longitudinal waved *ala* or *wing*, from the mouth to the base of the tube, and which is about one-third of an inch deep. The *mouth* of the tube is ovate, scarcely at all contracted, thickened at the margin, the front declined, the back of it surmounted with a broadly ovato-lanceolate, acuminate, nearly erect appendage, which is slightly convex, the margin alone, near the base, being recurved. This is usually of a purplish colour, marked with veins like the rest of the leaf, within covered with very minute reflexed hairs.

Scape twice the length of the leaves, one foot and a half long, cylindrical, erect, green, purplish above, and curved at the extremity, bearing a single, drooping, large, richly coloured *flower*.

Calyx double, the *outer* one of 3 small, ovate, yellow-green leaflets; the *inner* of 5, broadly ovate, bright purplish crimson spreading leaflets, the extremities pointing downwards, and protecting the rest of the flower. *Petals* 5, broadly ovato-rotundate, remarkably contracted below the middle, flaccid, pendent, of a very deep, fine purple colour, greenish at their bases. *Stamens* in a hollow cup-shaped receptacle, formed by the bases of the petals, numerous. *Filaments* rather short, purplish dotted. *Anther* inserted by the middle of its back, nearly horizontal, oblong, yellowish, formed of 2 cells, which open with a large aperture at the extremity. *Pollen* spherical, pale yellow. *Pistil* superior. *Germen* spherical, about the size of a small pea, minutely tuberculated. *Style* short, filiform, supporting a remarkably large, umbraculiform, convex, green stigma, with 5 lines, and 6 elongated angles, which curve down over the germen; its under side is downy.

The specific character given by the original discoverer of *S. rubra*, " foliis erectis tubulatis, valva plana erecta," is so applicable to our present plant, that I think there can be no question of its identity with our species. But I cannot agree with Mr PURSH in thinking that *S. psittacina* of MICHAUX is the same; for in that individual the tube of the leaf is described as gradually passing into a " recurved, rounded, fornicated, mucronated appendage, somewhat resembling the head of a parrot." Nor are the leaves of *S. rubra* short, as compared with those of its congeners, though they are so with regard to its scape.

It is a native of swamps in Georgia and Carolina, and was introduced to this country by Mr J. FRASER, in 1786, as we learn from the *Hortus Kewensis*. The beautiful specimen here delineated, was communicated by Mr SHEPHERD of Liverpool, in April 1822.

In the flower this species approximates to *S. purpurea*, but has leaves of a very different form, and the singular figure of whose appendage will ever keep it distinct from all other individuals of this genus.

Fig. 1. Scape and flower of *S. rubra*. Fig. 2. Leaf; and Fig. 3. Upper side of a flower, *natural size*. Fig. 4. Portion of a flower, with the great peltate stigma, turned up to display the stamens, and the germen with the style. Fig. 5. Stamen. Fig. 6. Pollen. Fig. 7. Germen and Style.—*All more or less magnified.*

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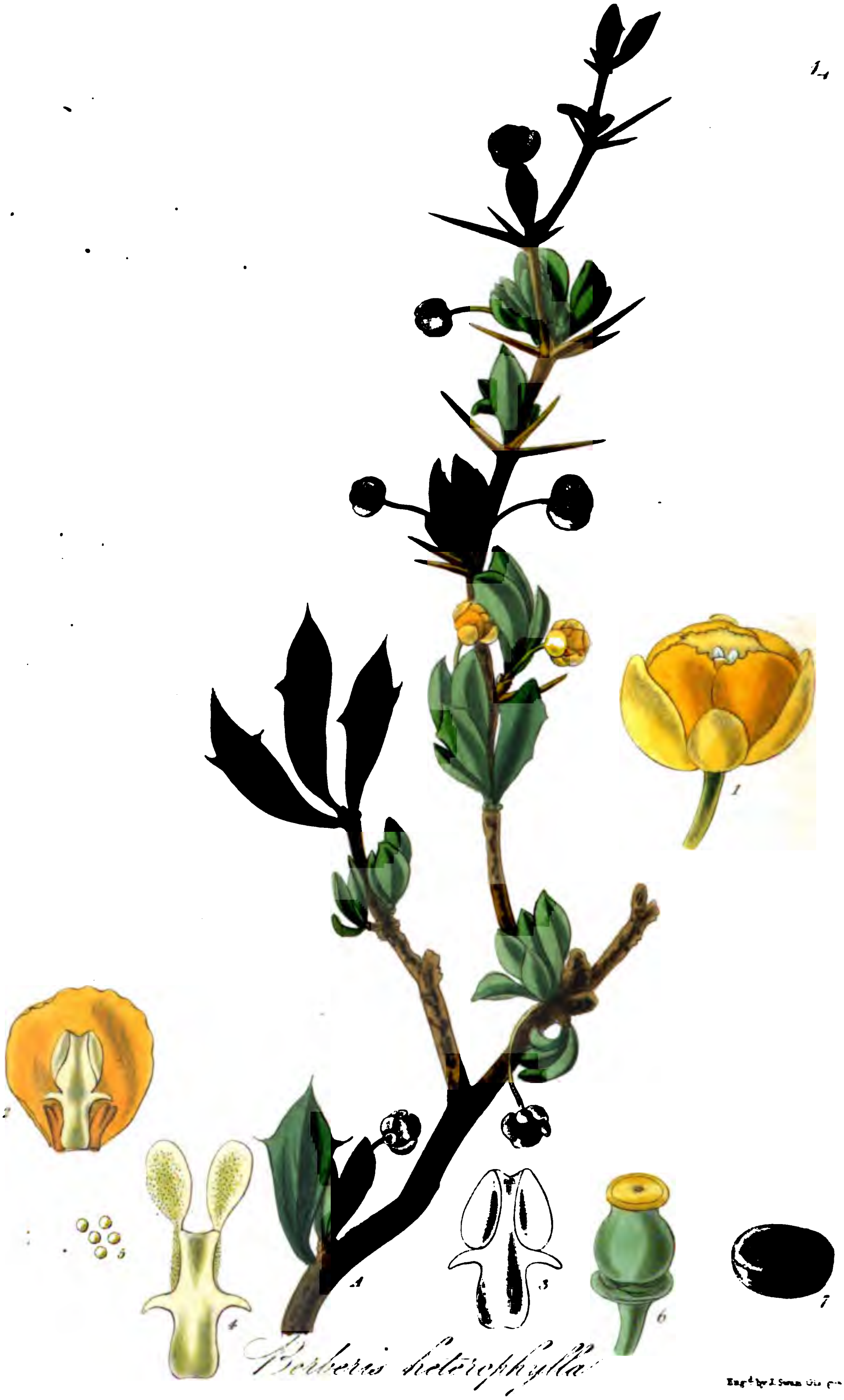


Berberis heterophylla.

Eng^{d} by J. Swan Glasgow

BERBERIS HETEROPYHLLA.

Various-leaved Barberry.

HEXANDRIA MONOGYNIA.—NAT. ORD. *BERBERIDES.*

GEN. CHAR.—*Calyx* hexaphyllus (squamis 3 extus stipata). *Petala* 6, intus biglandulosa. *Antheræ* valvis dehiscentes. *Bacca* monolocularis, 2–3-(poly-) sperma.—*D. C.*

Berberis *heterophylla;* spinis tripartitis, foliis ovato-lanceolatis glabris, aliis integris, aliis tridentato-pungentibus, pedicellis solitariis unifloris folio vix longioribus.—*Dec.*

B. heterophylla, POIRET, *in Encycl. Bot.* v. viii. p. 622.—DE CAND. *Regn. Veget.* v. ii. p. 16.

B. tricuspidata, SMITH, *Herb.* (fide DE CAND.)

A *shrub*, rising about 3 feet in height, much branched, the older branches covered with dark wrinkled bark; the younger ones brown, and somewhat angled. *Leaves* clustered, of 2 kinds, the younger ones being pale green unarmed, and the margins entire, softish; the old ones terminated with a sharp spinose point, and having a lateral spinule on each side above the middle; hence the appropriate MS. name of Sir JAMES SMITH; those older ones, too, are quite rigid, dark green, shining: all of them obovato-cuneate, slightly nerved.

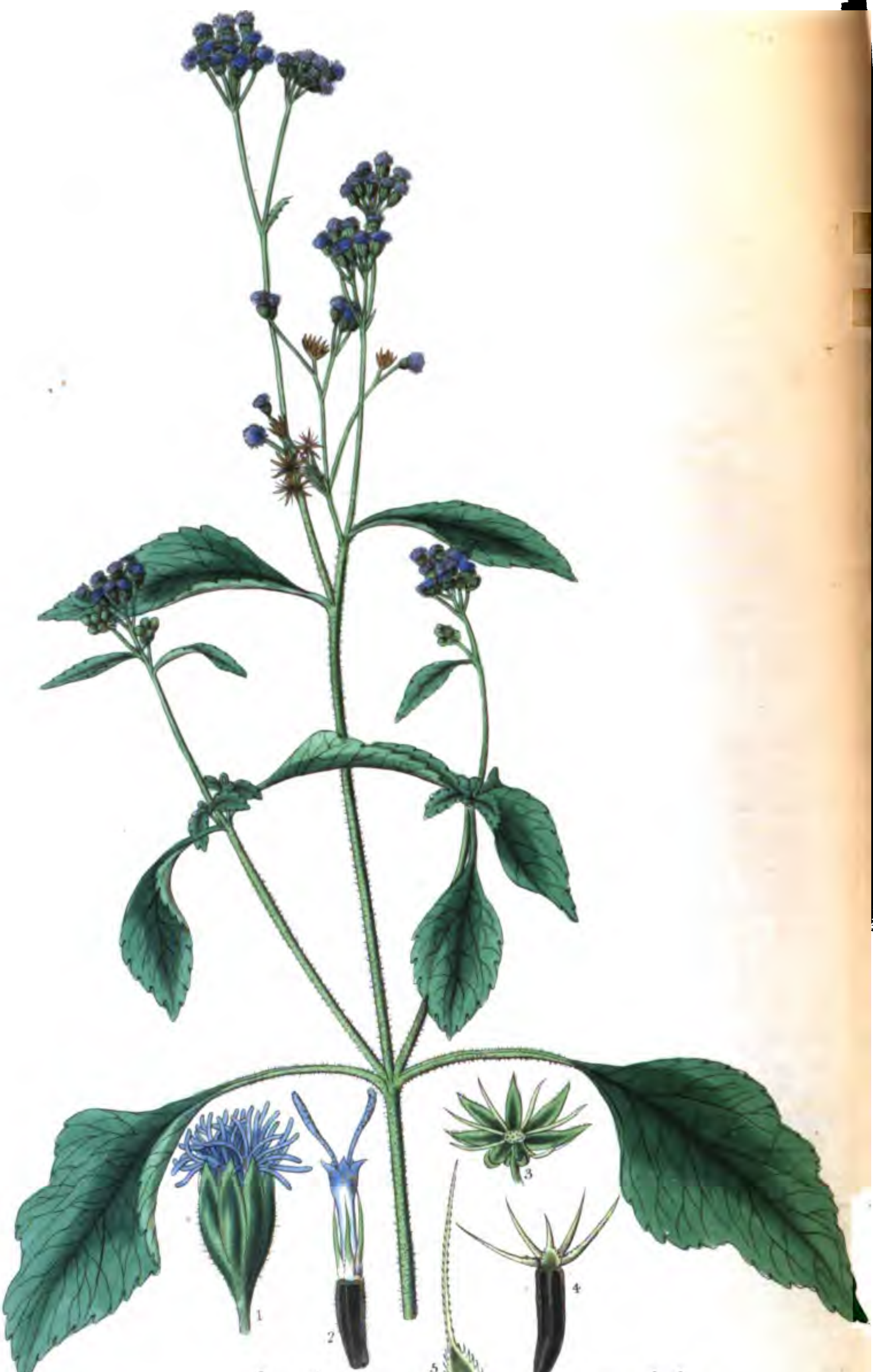
Peduncles axillary, solitary, curved, longer than the young leaves from among which they spring; bearing a single *flower* at the extremity. The *flower* about the size of a pea, composed of 6 *calycine leaflets*, ovato-concave, of which the three exterior and alternate leaflets are the smallest; and of as many *petals*, broadly ovate, connivent, deep yellowish-orange, crenated at the margin. At the base of each petal are 2 oblong, reddish-yellow *glands*, and between these, on each petal, is placed the *stamen;* this is shorter than the petal, yellow-orange coloured: *Filament* short, thick, with 2 lateral teeth, one on each side below the anther. *Anther* 2-celled, opening with 2 valves, whose broadest part is at the back of the anther; these open from the base upward, and remain erect, attached by their upper (now become their lower) extremity: *Pollen* globose. *Pistil* about as long as the stamens. *Germen* globose, glabrous, green, 1-celled, with several, from 8–10, ovules: *Style*, scarcely any: *Stigma* plane, glandular, and honey-bearing at the margin, umbilicated in the centre.

I am indebted to my kind correspondent, Mr H. SHEPHERD, for the opportunity of representing this interesting species of *Berberis*, which was communicated by him to me, from the Botanic Garden at Liverpool, in full flower, early in April, and which he conjectured might be the *B. ilicifolia* of FORSTER. That species, however, according to DE CANDOLLE, in his admirable history of the Genus, should bear its flowers in racemes; and the present plant appears to me to accord in every particular with the *B. heterophylla* of that work, and of POIRET. If I entertain any doubt as to its identity with the last-named plant, it is from the circumstance of the berry being described as 1-seeded, whereas the *germen*, in the individual before us, is evidently furnished with many ovules.

The present species certainly departs from the generic character of *Berberis*, as given by DE CANDOLLE, inasmuch as the calyx has no scales at the base; nor are the filaments destitute of teeth, for there are two most distinct ones just beneath the anther. I am aware that this is the character appropriated to *Mahonia*; but besides the difference in habit, that genus has its petals without glands, which in the plant before us are as distinct as in any species of *Berberis*.

B. heterophylla is, as well as *B. ilicifolia*, an inhabitant of the Straits of Magellan, where it was discovered by COMMERSON; but when, or by whom, it was introduced to our gardens, I cannot learn. It is a rare species, though its hardy nature, and the bright yellow of its flowers, as contrasted with the deep green of the leaves, would render it a desirable plant for the shrubbery.

A. Portion of a plant, *natural size*. Fig. 1. Flower. Fig. 2. Petal, with its glands, and anther. Fig. 3. Stamen, with its valves closed. Fig. 4. Stamen with its valves expanded. Fig. 5. Pollen. Fig. 6. Pistil. Fig. 7. Germen, cut through transversely, to shew the ovules.—*More or less magnified.*



Ageratum conyzoides

Eng^d by J. Swan Glasg^w

15

AGERATUM CONYZOIDES.

Hairy Ageratum.

SYNGENESIA POLYGAMIA ÆQUALIS.—Nat. Ord. *COMPOSITÆ*, *De Cand.* *SYNANTHEREÆ*, Trib. Eupatoriæ, *Cass.*

Gen. Char.—*Receptaculum* nudum. *Pappus* paleis 5, subaristatis. *Involucrum* oblongum, duplici foliorum serie. *Corollulæ* 4 seu 5-fidæ, *Willd.*

Ageratum *conyzoides;* foliis ovato-rhomboideis, caule piloso, paleis pappi aristatis denticulatis.

A. conyzoides, Willd. *Sp. Pl.* v. iii. p. 1773.—Ait. *Hort. Kew.* ed 2. v. iv. p. 509.—Schkuhr, *Bot. Handb.* t. 238.

Stem, 1–2 feet high, cylindrical, hairy, erect, much branched, with the branches opposite, erecto-patent. *Leaves* ovate, approaching to rhomboid, rugose, recurvo-patent, pubescent, the lower part of the margins acutely serrated, petiolated; petioles as long as the leaf, grooved, pilose. *Flowers* bright blue, inclining to purple, in terminal and lateral small pedunculated corymbs, which have small bracteas at the base of the stalk. *Involucre* ovato-cylindrical, slightly pilose, composed of about 14 erect scales in 2 rows, of which the outer half are oblongo-lanceolate, the inner (alternate with the outer) almost setaceous; they appear slightly toothed, under a high magnifying power. *Receptacle* small, naked, containing few florets, which are shorter than the involucre, so that nothing but the styles are protruded. *Corollules* tubular, with 5 blue teeth, the rest white. *Styles* much protruded, filiform, pubescent, blue. *Germen* scabrous, terminated by 5 white setæ, which are broad at the base. *Pericarp* (*achenium*) blackish-brown, soon falling out from the expanded involucre. *Pappus* of 5 ovate scales, terminated each by a long arista, minutely toothed for their whole length.

A native of South America and the West Indian Islands, and an annual, but easily propagated, and well deserving of a place in every stove. It flowers during a considerable period of the summer; and even the severities of winter witness the expansion of its pretty blue blossoms.

Fig. 1. Involucre, with its florets. Fig. 2. Single floret. Fig. 3. Involucre, as it appears after the pericarps are fallen away. Fig. 4. Pericarp (achenium), with its pappus. Fig. 5. One of the scales of the pappus: *All more or less magnified.*

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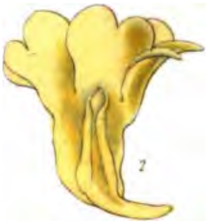
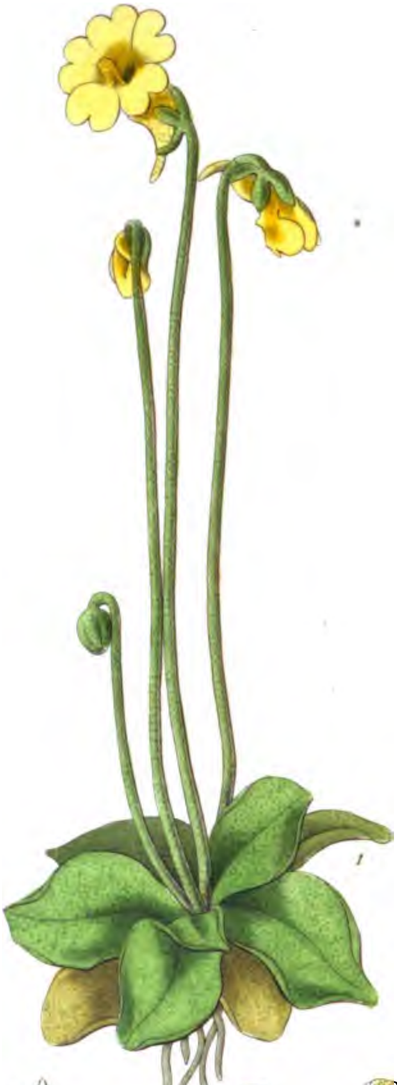
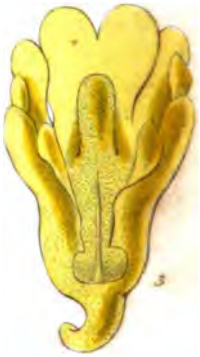






Pinguicula edentula

Engd. by J. Swan

16

PINGUICULA EDENTULA.

Toothless-flowered Yellow Butterwort.

DIANDRIA MONOGYNIA.—NAT. ORD. *LENTIBULARIÆ*, *Rich. Br.*

GEN. CHAR.—*Corolla* ringens, calcarata. *Calyx* bilabiatus, quinquefidus. *Capsula* unilocularis.

Pinguicula *edentula;* nectario subulato recurvo, corolla campanulata breviore, quinquelobo, lobis emarginatis integerrimis, palato prominente, scapo pubescente.

Root perennial, fibrous, slightly villous. *Leaves* all radical, spreading, ovate, with their margins incurved, pale green, the surface studded with minute pellucid dots, or papillæ, which are soft and unctuous to the touch, furnished through the centre with one nerve. From the centre of these leaves arise 3 or 4 erect, single-flowered scapes, about 5 inches long, cylyndrical, downy.

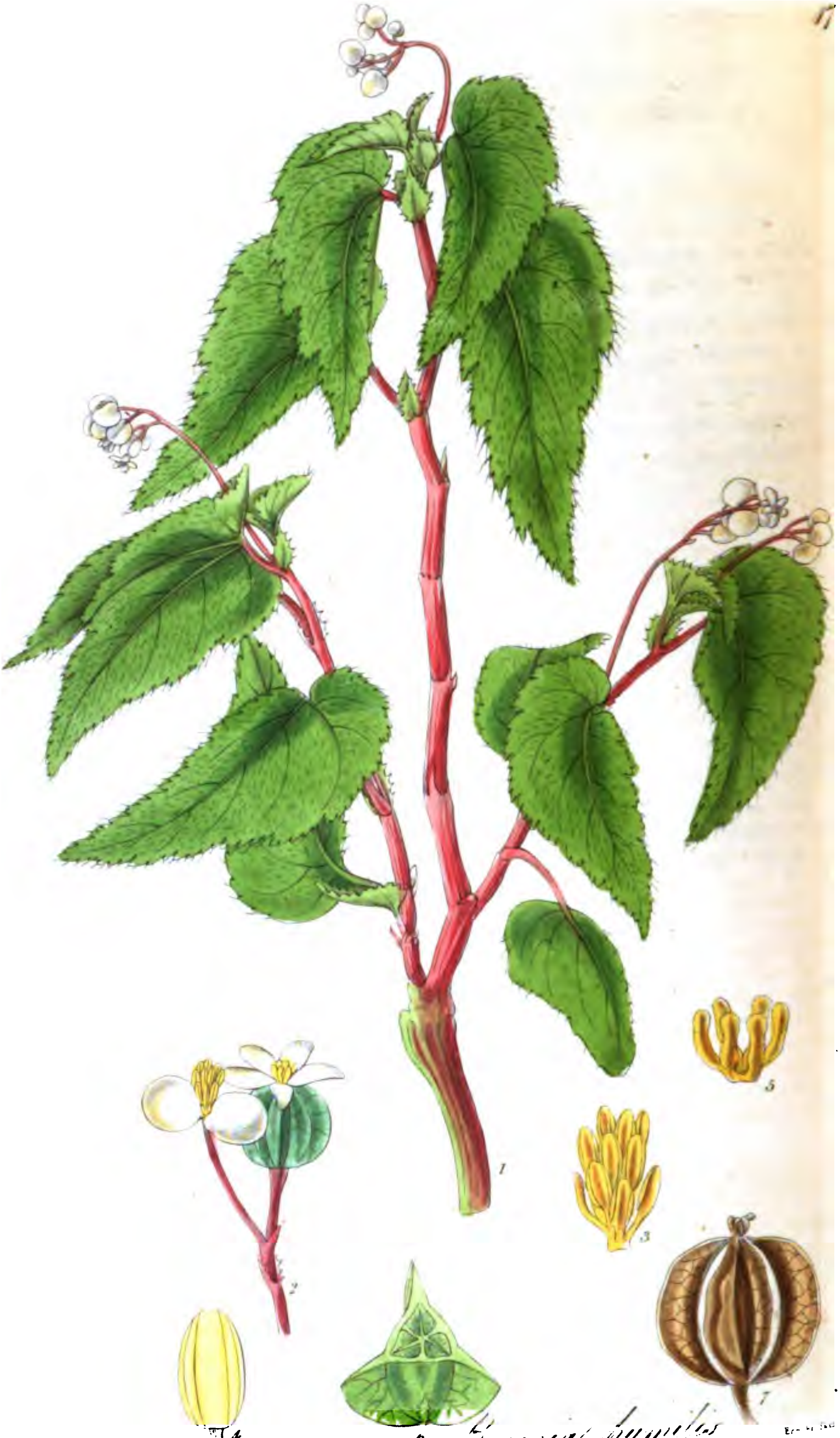
Calyx small, 2-lipped, the upper lip of 3, the lower of 2 oblong-lanceolate obtuse segments, downy on the outside. *Corolla* large, drooping before expansion, pale yellow, rather obliquely campanulate, with a small deflexed spur at the base, tube with a deep furrow on one side, running into a tubular palate in the interior of the corolla: *Limb* divided into 5 equal spreading, obcordate, deeply emarginated, almost semibifid lobes, but destitute of teeth or crenatures. The *corolla* is glabrous, except within the tube, and upon the surface of its prominent oblong, obtuse, palate, which are downy. *Stamens* 2, placed at the base of the germen, one on each side. *Filament* curved, thick, a little ciliated. *Anther* with a single, terminal, transverse cell. *Germen* spherical, with glandular hairs. *Style* short, columnar, thick: *Stigma* of 2 lobes, one small and resembling a hook, the other a large involute white plate, ciliated at the margin, covering entirely the upper part of the stamen.

This beautiful species of *Pinguicula* was sent from the swampy grounds of Savannah, North America, along with many other rare plants, to our Botanic Garden, by Mr WILSON, an intelligent gardener of that country. It blossomed in the stove in April, and as it continues some time in flower, it is likely, if it prove easy of increase, to be a valuable addition to our gardens. We cultivate it in peat-earth; and it seems to prefer the stove to the green-house.

At first sight, I believed this to be the *P. lutea* of WALTER, *Fl. Carn.* but every writer describes that plant, and Mr GAWLER has represented it in the Botanical Register, t. 126. with three of the five lobes having four distinct teeth. No such peculiarity is visible in our specimen. To this difference, I may add, that the leaves are much larger than in *P. lutea*, the scape is taller, and the flower paler, never having "the tube and the spur marked with a trace of purplish veins."

The foliage is precisely similar to that of *P. grandiflora* (Flora Londinensis, New Series), and the structure of the stamens and the pistil is also the same; but it differs strikingly in the form of the corolla, here almost entirely regular, and its singularly prominent palate. Most of the genus have blue flowers, those of this species and of *P. lutea* alone being yellow.

Fig. I. Plant, *natural size.* Fig. 2. Back view of a flower, with the groove and the aperture leading to the palate. Fig. 2. Front view of a corolla, cut open to shew the palate. Fig. 4. Stamens, and pistil; the large stigma covering, with one of its lobes, the Anthers. Fig. 5. Single stamen. Fig. 6. Pistil.—*More or less magnified.*



Begonia humilis

17

BEGONIA HUMILIS.

Small flowered Begonia.

MONOECIA POLYANDRIA.—NAT. ORD. *BEGONIACEÆ*, *Bonpl. De Cand.*

GEN. CHAR.—MAS. *Cal.* 0. *Cor.* polypetala. *Petala* plerumque 4, inæqualia.—FŒM. *Cal.* 0. *Cor.* petalis 4–9, plerumque inæqualibus. *Styli* 3, bifidi. *Caps.* triquetra, alata, 3-locularis, polysperma.

Begonia *humilis*; caulescens erecta, foliis hispidis semicordatis duplicato-serratis, capsulæ alis rotundatis parum inæqualibus.—*Dr.*

B. humilis, AIT. *Hort. Kew.* ed. 1. v. iii. p. 353.—DRYANDR. *in Linn. Trans.* v. i. p. 166. t. 15.—HAW. *Syn. Pl. Succ.* p. 318.

B. lucida, HAW. *Sax. et Rev. Pl. Succ.* p. 197.

Plant about one foot and a half high, perennial. *Stems* much branched, jointed, swelling at the joints; branches erecto-patent, all of them semi-pellucid, succulent, brittle, greenish below, reddish above, marked with longitudinal deeper-coloured lines. *Leaves* 2–3 inches long, semi-cordate, acuminate, bright, green, shining, hispid above, glabrous beneath, but covered with minute furfuraceous scales, visible with the microscope; their margins doubly serrated and ciliated. *Petioles* short, glabrous. *Stipules* rather large, ovate, pellucid, greenish, very delicate, and membranaceous, ciliated at the margin, soon falling away.

Peduncles axillary and terminal, 2–3 inches long, reddish, branched at the extremity in a dichotomous manner, with ciliated bracteas at their base: *Pedicels* shortish, some bearing male, some female flowers; the former, generally, upon the longest stalks.

Male flower.—*Petals* 4, unequal, 2 larger, and 2 smaller, orbicular, spreading, white: the latter, as DRYANDER observes, are often wanting; in my specimen they were wholly absent. *Stamens* 10–15, yellow, with very short filaments, which are all united at their bases. *Anther* oblongo-ovate. *Cells* lateral, opposite, opening longitudinally. *Female flower* composed of 5 petals, or rather of 1 very deeply quinquepartite petal; the segments spreading, linear, oblong, persistent. *Germen* greenish, large, with unequal longitudinal wings, veined, with two minute ciliated bracteas at the base. *Styles* 3, very short. *Stigma* bipartite, the segments a little divaricated, linear, oblong, glandular, capitate at the extremity.

Capsule of the same shape as the germen, membranaceous, brown; the wings remain attached only by their upper and lower extremities: the capsule itself, in the centre of these wings, opening by three longitudinal fissures, exactly at that part where the wings were longitudinally attached, and exhibiting the trialate central receptacle. My capsules had discharged all their seeds.

A native of the West Indies, having been discovered there by Mr ALEXANDER ANDERSON, and first introduced into our gardens in 1788, by Messrs LEE and KENNEDY. It is cultivated in the Botanic Garden of Glasgow, and in that of Liverpool, whence Mr SHEPHERD sent the specimen represented.

The perfect accordance of the present plant, in almost every particular, with the *B. humilis* of DRYANDER, leaves not a doubt on my mind of its being the same species. If, however, this my idea be correct, the *B. humilis* of *Botanical Register* t. 284. cannot be the same; for it is there figured with large and dense panicles of numerous flowers, the staminiferous blossoms having four, almost equal, white petals, the stem wanting the beautiful transparency so striking in our plant, the stipules very large, tipped with a mucro, and the leaves, besides their larger size, and deeper green colour, being represented as wholly destitute of any kind of hairiness. I am aware that the description in the *Bot. Reg.* speaks of the hispidity and ciliation of the foliage; but that is professedly copied from DRYANDER's *B. humilis.* GAWLER's plant is the *B. suaveolens* of LODDIGES and HAWORTH, according to the latter author.

I confess that I can find no difference in the *B. lucida* of HAWORTH, in the work quoted above; and the author says of it, " Affinis maximè B. humili."

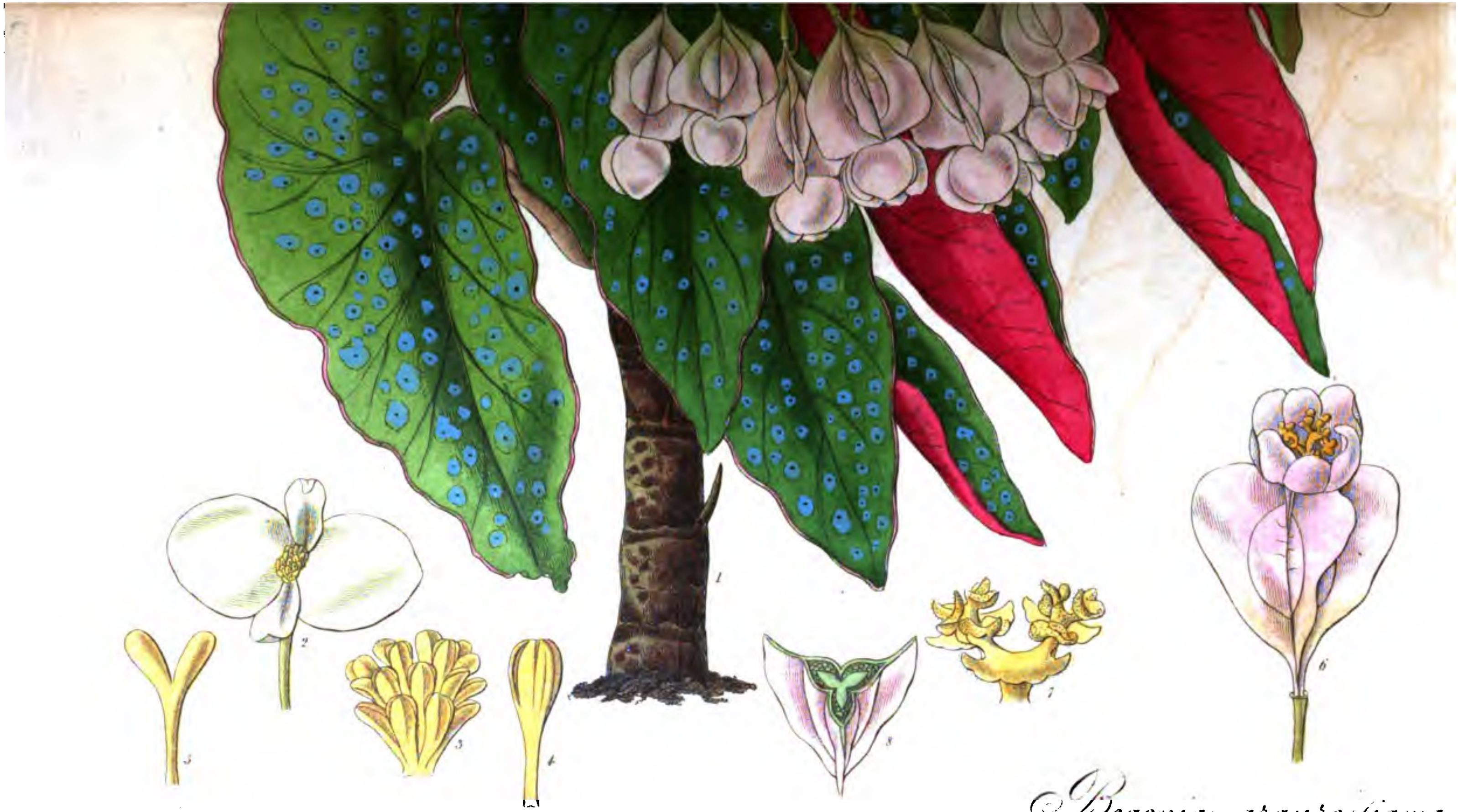
B. humilis of BONPLAND is considered by GAWLER as a distinct species, and is probably really so, being neither his nor our plant, since it is described as having the stem roughly furred.

BONPLAND, in his beautiful work on the Plants of the Garden at La Malmaison, has no doubt, with great propriety, formed of this single genus the Order *Begoniaceæ.* The question is, what are its natural affinities? LINNÆUS ranked it with the *Polygona* and *Rumices,* and SMITH and DE CANDOLLE seem to be satisfied of the propriety of this arrangement. BROWN observes, that its place is not satisfactorily determined; while Mr LINDLEY, in a recent number of the *Bot. Register,* thinks that he has detected a remarkable affinity between the genera *Begonia* and *Hydrangea,* adding, that the idea of its being allied to the *Polygoneæ,* probably originated in the taste of the leaves, which bears assuredly a striking resemblance to that of the foliage of different species of *Rumex.*

Indeed, such is the agreeably acid flavour of the leaves of these plants, that the French colonists in the West Indies eat them under the name of *Wild Sorrel.*

As a genus, it is found in the tropical parts of America, in several districts of the East Indies, in the Isles of France and Bourbon, according to Mr BROWN, upon the Island of Joanna, and in Madagascar; but none of the species have been detected in Africa, although the *B. diptera* of DRYANDER, from Joanna, has erroneously gone under the appellation of *B. Capensis.*

Fig. 1. Portion of a plant, *natural size.* Fig. 2. Male and female flowers. Fig. 3. Cluster of stamens. Fig. 4. Single stamen. Fig. 5. Styles and pistils. Fig. 6. Germen cut open, to show the 3 cells, and the 3-winged receptacle of the seeds. Fig. 7. Capsule burst open, having discharged its seeds.—*All magnified.*



J. Swan Sculp!

Begonia argyrostigma

BEGONIA ARGYROSTIGMA.

Silver-spotted Begonia.

MONOECIA POLYANDRIA.—NAT. ORD. *BEGONIACEÆ, Bonpl. De Cand.*

GEN. CHAR.—MAS. *Cal.* 0. *Cor.* polypetala. *Petala,* plerumque 4, inæqualia.—FŒM. *Cal.* 0. *Cor.* petalis 4–9, plerumque inæqualibus. *Styli* 3, bifidi. *Caps.* triquetra, alata, 3-locularis, polysperma.

Begonia *argyrostigma*; foliis oblongis semicordatis acuminatis repandis glabris discoloribus, superne argenteo-maculatis.

B. argyrostigma, FISCH. *Hort. Gorenk.* (fide Link et Otto).—LINK et OTTO, *Abbild. Auserl. Gew.* v. i. p. 23. t. 10.—HAW. *Succ. Pl.* 1821, p. 197.

Stem erect, from 8 or 10 inches to 2 or 3 feet in height, according to LINK, branched; its thickness about that of the human finger; reddish, jointed, glabrous. *Leaves* numerous, more or less crowded, alternate, petiolated, pendent, oblong, unequally cordate, the large lobe being almost half the size of the rest of the leaf, quite glabrous, the margin thickened, repand, scarcely crenated, the upper surface deep green, nerved, and studded with numerous white roundish spots, which in the older leaves have a shining appearance, not unlike silver; these spots have again one or more green spots or points in their centre; the under side of the leaf is a fine deep reddish-purple, quite destitute of spots. *Petioles* about 2 or 3 inches long, terete, with large, ovate, membranous stipules at the base.

Flowers large, monoœcious; male and female generally borne on distinct axillary peduncles, and collected into many-flowered panicles, drooping, as it appears, from the weight. *Peduncles* and *pedicels* pale reddish, the latter with two ovate, rather small bracteas. MALE *flower* composed of two roundish, large, and two obovato-oblong, white, spreading *petals*. *Stamens* numerous, united by their base. *Filaments* short, yellow, sometimes forked at the extremity. *Anther* oblong, yellow, opening behind longitudinally, the opening near the margins. FEMALE *flower* of six, rather unequal, ovate, concave, pale rose-coloured *petals*. *Germen* very large, rose-coloured, triangular, trialate, wings broad, rounded at the upper angle, membranaceous, nearly equal. *Style* short, yellow; *stigmas* 3, large, variously lobed, yellow, glandular, the lower lobe broad, and curved downwards.

Singular and beautiful as this species of *Begonia* is, in the appearance of the leaves, it is scarcely less striking in its flowers, the male blossoms of which are pure white, the female of a delicate rose colour. These were produced, probably for the first time in Britain, at the stove of the Botanic Garden at Edinburgh, where the accompanying figure was taken in June 1822. The species is well represented in the excellent *Icones Selectæ* of LINK and OTTO. Our plant is far more compact, and of shorter stature, in consequence, perhaps, of its being cultivated in a small pot. From those authors we learn that it is a native of Brazil.

It seems easy of cultivation, and may probably, at a future time, be as common as the hardly less beautiful *B. Evansiana.* The soil best suited to all the individuals of this genus is a mixture of loam and peat; and it is particularly requisite that the bottom of the pot be well drained, as the roots are readily injured by stagnant water. The plant in our Botanic Garden was received from that of Edinburgh.

Fig. 1. Plant, *natural size.* Fig. 2. Male flower. Fig. 3. Bundle of stamens. Fig. 4. Single stamen. Fig. 5. Forked ditto. Fig. 6. Female flower. Fig. 7. Style and stigma. Fig. 8. Section of the germen.— *All but* Fig. 1. *more or less magnified.*

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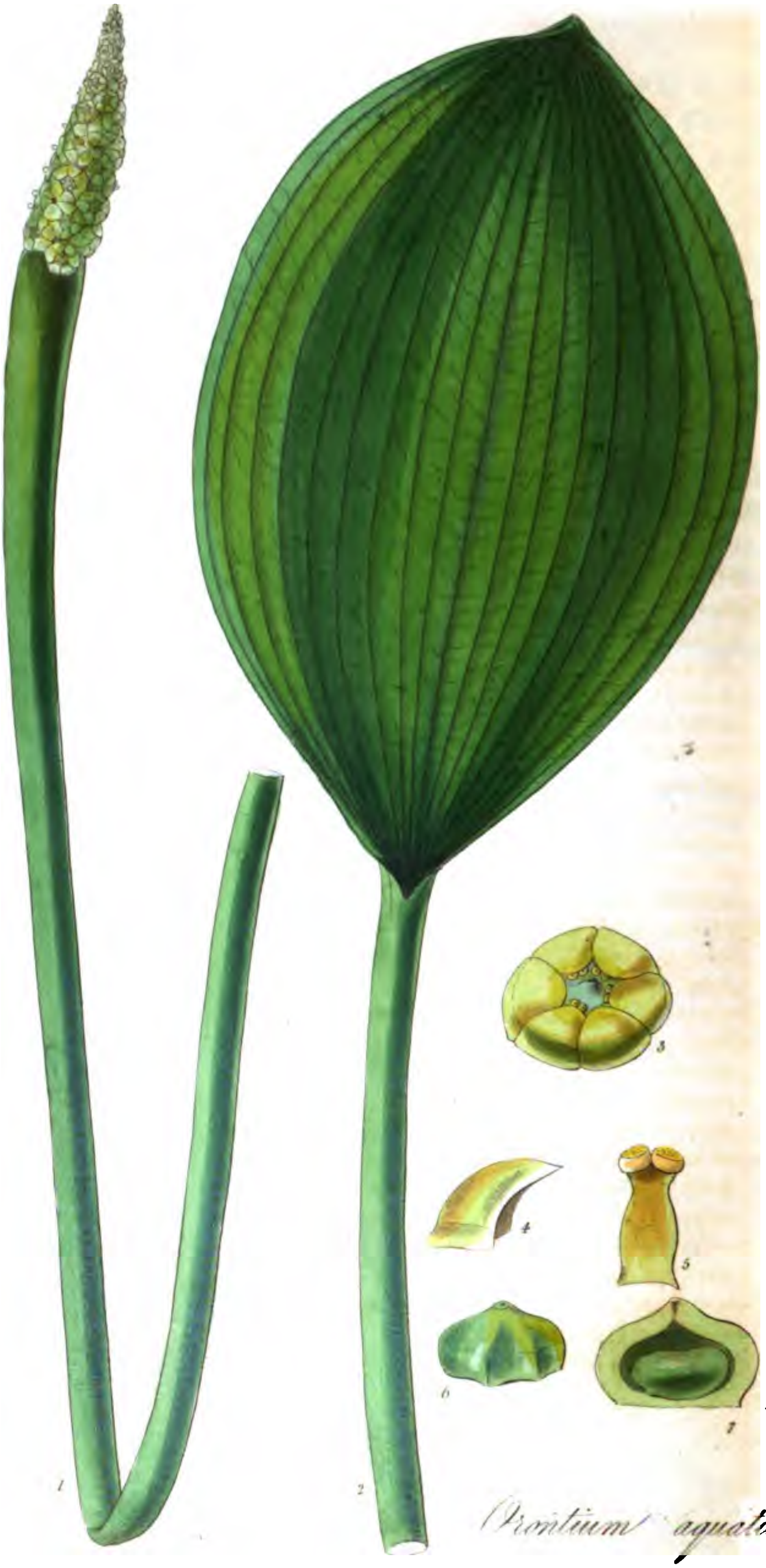

Orontium aquaticum

ORONTIUM AQUATICUM.

Aquatic Orontium.

HEXANDRIA MONOGYNIA.—NAT. ORD. *AROIDEÆ.*

GEN. CHAR.—*Spadix* cylindricus tectus flosculis. *Spatha* nulla. *Perianthium* simplex, hexaphyllum, foliolis inflexis. *Stylus* nullus. *Utriculus* monospermus.

Orontium *aquaticum;* foliis lanceolato-ovatis.—*Willd.*

O. aquaticum, LINN. *Sp. Pl.* p. 463.—*Amœn. Acad.* v. iii. p. 17. t. 1. f. 3.—WILLD. *Sp. Pl.* v. ii. p. 199.—AIT. *Hort. Kew.* ed. 2. v. ii. p. 306.—PURSH, *Fl. Amer. Sept.* v. i. p. 235.—NUTT. *Am. Pl.* v. i. p. 227.

Whole plant smooth (according to SMITH), with floating foliage, and like a *Potamogeton* in its mode of growth. *Leaves* upon long cylindrical stalks, varying, as it would appear, remarkably in their form; in my specimens broadly elliptical and acute, characterised by most authors as lanceolato-ovate, whilst PURSH observed a variety growing in salt-marshes near New York, with almost linear leaves. They are quite entire at the margin, nearly plane on the surface, dark green, and marked with a number of parallel ribs, which are connected by faint transverse lines. The lamina of the leaf is fixed upon the summit of the *petiole* in such a manner as to leave a depression in front, and the petiole becomes almost immediately cylindrical.

Scape long, cylindrical, green, thickened, and much yellower above; terminating in the conico-cylindrical greenish-white spadix, about 2 inches in length, totally destitute of spatha.

Florets crowded, composed of a single perianth, of 6 yellowish-green *leaflets,* fleshy, convex, the margins thin, and somewhat scariose, the extremities inflexed, so that the essential organs of the flower are almost concealed by them. The upper florets have generally 5 or 4 leaflets to the perianth. Within each leaflet is a single stamen. Its *filament* short, broad, and flat, a little contracted above, and terminated by the 2-lobed and 2-celled, yellowish anthers, which open *vertically.* *Pollen* yellow. *Pistil* semiglobose, with 5 longitudinal slightly elevated lines. *Style* none. *Stigma* conico-obtuse. Within the *ovary* is one cell, and a single *ovule,* fixed near one extremity by its under side to the base of the cell, of a transversely oblong form. As I have not had the opportunity of seeing the *fruit* of this plant myself, I shall transcribe what Mr NUTTALL says of it in his genera of North American Plants: " *Utriculus* naked, green, roundish, 1-seeded, the size of a large pea. *Gemmule* viviparous, or commencing to vegetate as soon as mature, (cotyledons none), primary vaginate leaves 2 or 3, linear, and subulate, the 4th leaf usually exhibiting a small lamina. *Primary radicle* conspicuous, conic. *Somorhize*[*] roundish, large, dark green, umbilically depressed at the summit, having a small concealed internal cavity, and a lateral shallow groove, for the reception of the gemmule, which is appressed to it, and curved over the greater part of the somorhize."

A native of North America, from Canada to Florida, growing in rivulets, and low and stagnant waters (Pursh), and, as Mr Nuttall believes, almost exclusively within the limits of tide-water. It bears the winter well with us, and is readily cultivated in ponds, along with other aquatic plants. It was introduced to this country by Dr John Fothergill, in the year 1775, but hitherto no delineation of it has appeared in any British botanical publication. That in the *Amœnitates Academicæ*, if really intended for this plant, conveys a most incorrect idea of it; for the scape is represented as deeply furrowed, furnished with a large bractea; the leaf has one central rib, and several lateral parallel nerves, resembling the foliage of most *Dicotyledonous Plants*.

Pursh observes, what I did not remark, that the flowers have a very peculiar smell.

The drawing, from which the annexed plate was engraved, was taken from specimens communicated from the Botanic Garden of Liverpool in June last, by Mr H. Shepherd.

Fig. 1. Scape with its spadix. Fig. 2. Leaf. Fig. 3. Single flower. Fig. 4. Leaflet of the perianth. Fig. 5. Stamen. Fig. 6. Pistil. Fig. 7. The same cut through vertically.—*All but* Fig. 1. and 2. *more or less magnified.*

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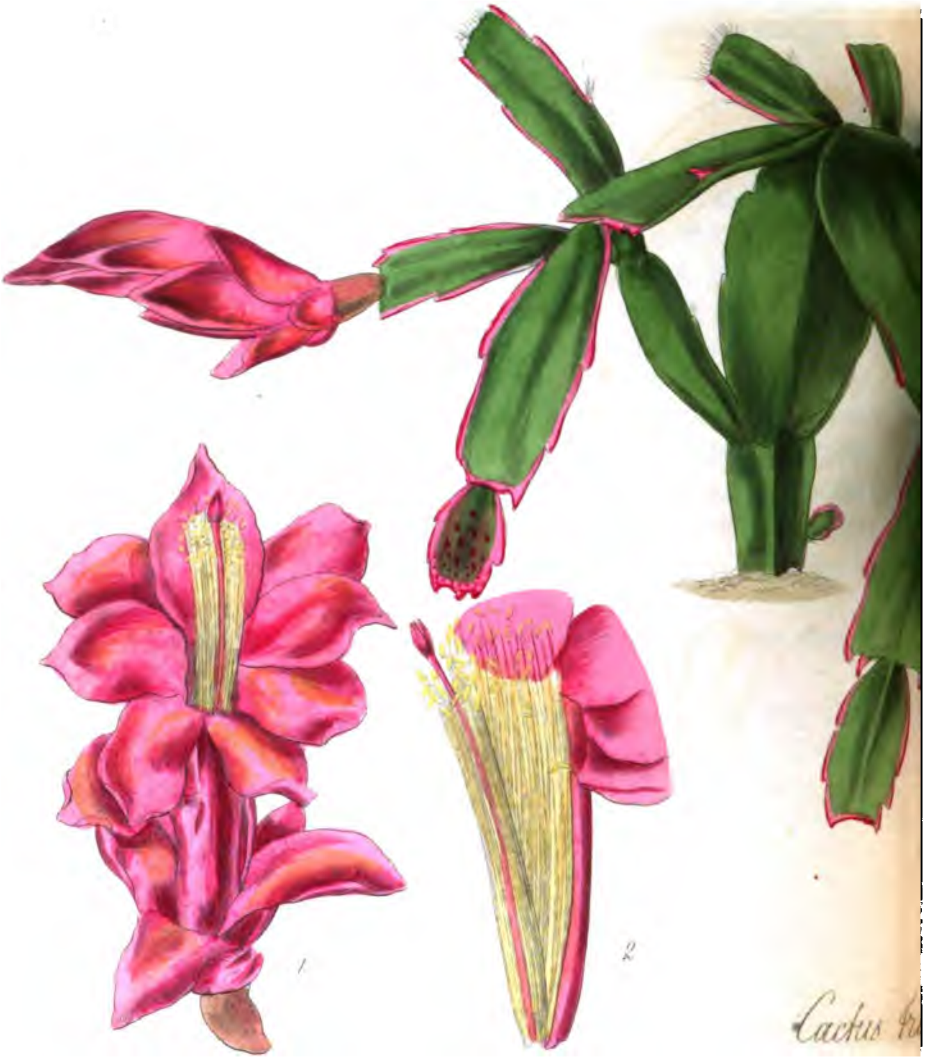
[*] "In this case, a large, round, ingerminative body, laterally connected by a vascular system to the gemmule, and forming the principal part of the seed."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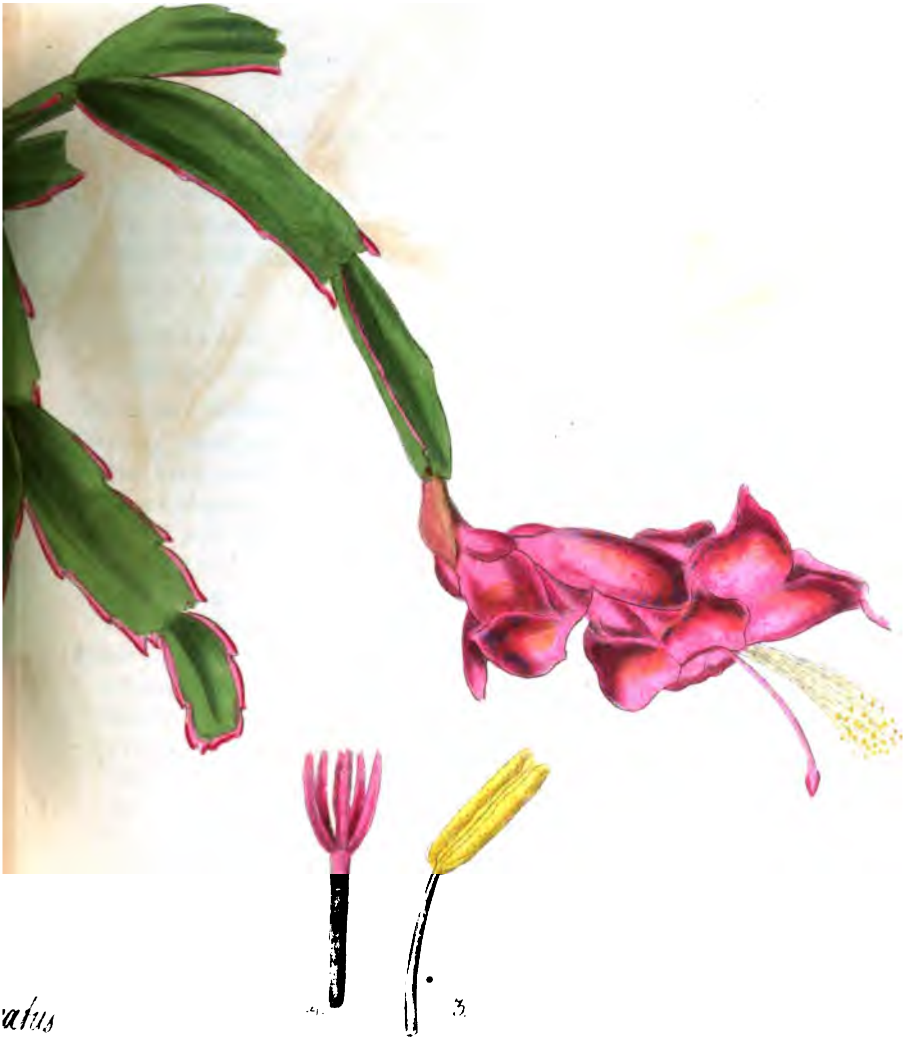

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CACTUS TRUNCATUS.

Truncated Cactus.

ICOSANDRIA MONOGYNIA.—NAT. ORD. *NOPALEÆ, Juss. ined. De Cand.*—*CACTI, Juss. Gen. Pl.* DIV. PHYLLANTHI.

GEN. CHAR.—*Cal.* e squamis numerosis imbricatis, superus. *Petala* numerosa, calyci inserta, interiora majora, basi coalita. *Stigma* multifidum. *Bacca* umbilicata, polysperma. *Semina* intra pulpam nidulantia.—*Frutices* pingues, aphylli sæpius articulati, spinosi vel fasciculatim pilosi, compressi vel angulati. *Flores* plerisque magni, speciosi.

Cactus *truncatus;* caulibus articulatis ramosis, ramis cernuis, articulis compressis oblongis truncatis, limbo floris obliquo.

Epiphyllum truncatum, HAW. *Suppl. Pl. Succ.* p. 85.

Flowering plants not exceeding at most 8 or 10 inches in length. The *stems* rise erect, and soon become branched, the *branches* drooping. *Whole plant* composed of compressed, somewhat foliaceous, oblong *joints*, plane above, with a slight groove or channel, somewhat keeled beneath, the margins having distant serratures, which are often red, especially in the young' joints, and there also furnished with small fascicles of hairs; the extremity truncated, with 2 rather long teeth at the angles.

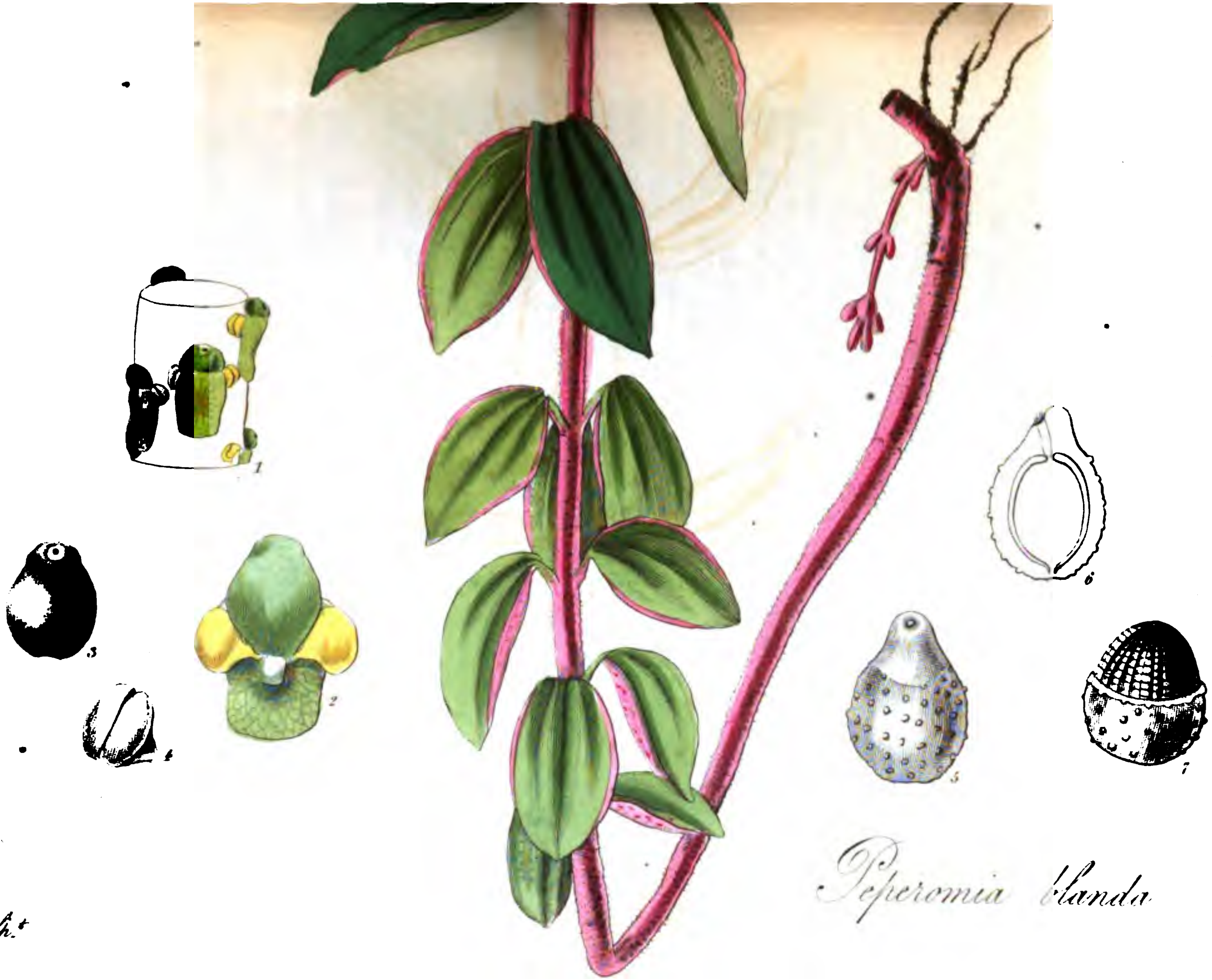
Flower arising from the truncated extremities of the joints, 3 inches long, of a beautifully deep rose colour, standing out horizontally, formed of many imbricating petals: or the 4 or 5 lowermost of these may be considered a calyx, since they stand a little remote from the others; the rest are united by their bases into a long whitish tube, the *limb* of 8 or 9 segments, large, spreading, oblique, ovate. *Stamens* numerous, much longer than the tube of the corolla, in 2 rows, the outermost arising from the base of the corolla, the inner, from the receptacle, and forming a tube around the style, (see f. 2.) *Filaments* slender, filiform; *Anthers* oblong, 2-celled, yellow, as well as the pollen. *Pistil:*—*Germen* obconical, small, inferior, greenish, tipped with rose-colour, smooth. *Style* filiform, red, as long as the stamens, a little curved downwards. *Stigma* clavate, formed of 6 connivent segments.

This beautiful species, to the brilliant colour of whose blossoms no pencil can do justice, flowered in our Botanic Garden in October 1821, having been received in the spring of that same year, with many other botanical treasures, from the Royal Garden at Kew, through the liberality of my kind friend W. T. AITON, Esq. It was by him obtained from the Brazils in 1818, and is described by none but Mr HAWORTH, in the Supplement to his work on Succulent Plants, at a time when its flowers were not known.

In another instance, I have followed, though not without hesitation, the able investigator of Succulent Plants just mentioned, in taking up the genus *Rhipsalis*; but in the present I do not see sufficient grounds for constituting a generic character. Nothing, indeed, can be more natural than the divisional characters of the genus *Cactus*, taken from the stems; but it does not appear to me that the structure of the flowers affords marks equally constant. A more intimate acquaintance with the flowers and fruit than we yet possess, may enable us to discover differences, but at present I think it safest to confine myself to the old genus.

There can hardly be a more desirable plant for the stove than the present individual, as it increases readily by cuttings, and only requires the common treatment of the rest of its congeners.

Fig. 1. Front view of a flower, *slightly magnified.* Fig. 2. Portion of the tube, to shew the insertion of the stamens. Fig. 3. Anther. Fig. 4. Stigma.—*All more or less magnified.*



Peperomia blanda

J. Swan Sculp.t

21

PEPEROMIA BLANDA.

Villous Peperomia.

DIANDRIA MONOGYNIA.—Nat. Ord. *PIPERACEÆ*, *Humb. et Kunth.*—
PIPIRETEES, *De Cand.*—URTICIS AFFINIS, *Juss.*

Gen. Char.—*Spadix* cylindraceus, floribus undique tectus. *Stamina* duo. *Stigma* indivisum. *Bacca* monosperma. *Caulis* herbaceus.—*Humb. et Kunth.*

Peperomia *blanda*; pubescens, caule erecto simplici terete, foliis ternis oblongis trinervis carnosis, superioribus utrinque attenuatis, spadicibus terminalibus axillaribusque solitariis.

Peperomia blanda, Humb. et Kunth, *Nov. Gen.* v. i. p. 67.

Piper blandum, Jacq. *Coll.* v. iii. p. 210.—Ic. *Var.* v. ii. p. 218.—Willd. *Sp. Pl.* v. i. p. 164.—Haworth, *Syn. Pl. Succ.* p. 7.—Roem. et Schultz, *Syst. Veg.* v. i. p. 329.

Root creeping and fibrous. *Stem* about 1 foot in height, erect, simple, cylindrical, jointed, pubescent, and red to the very extremity. *Leaves* distantly placed upon short, semicylindrical footstalks, recurved, oblongo-ovate, thick and fleshy, pubescent, three-nerved, green above, yellowish, with red margins, nerves and dots beneath, the lowermost ones obtuse, the superior ones more or less attenuated at the base and at the extremity.

The *spadix* is solitary at the base of each of the leaves which are nearest to the extremity; the terminal ones are often 4 or 5 together, green, 2–4 inches long, slender, pedunculated, peduncles shortish, red. *Flowers* rather distantly placed. *Scales* rotundo-quadrate, pellucid, reticulated, peltate. *Germen* broadly ovate, sessile. *Stigma* sessile, oblique, somewhat fringed. *Anthers* 2, one on each side of the germen, borne upon filaments, which are so short that they are scarcely protruded beyond the scale, of one cell.

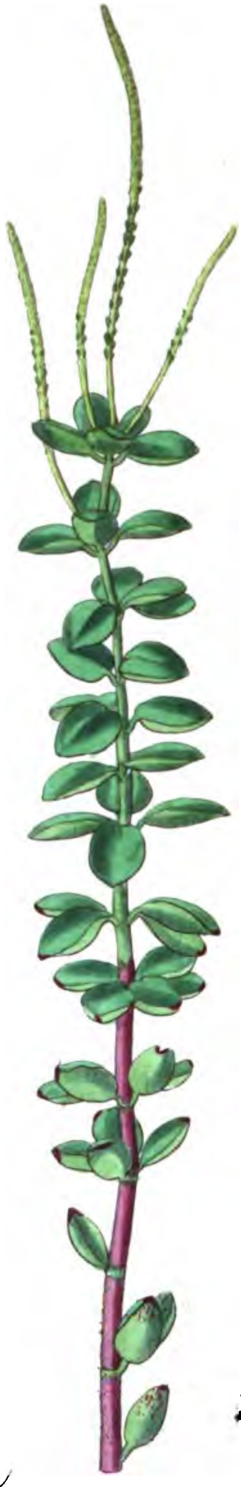
The genus *Peperomia* was long ago divided from *Piper* by Ruiz and Pavon; but by most subsequent botanists it has again been united to it, under the idea that such a separation was not founded in nature. To me, however, it appears well distinguished, as being constant, so far as an examination of the individuals cultivated in our stoves enables me to speak, to the characters above given, and agreeing also in the peculiar habit of the species. The individuals belonging to the genus *Piper*, according to the information of M. Humboldt, have a shrubby stem, sometimes attaining to 15 and 25 feet in length, and dull green leaves; the *Peperomiæ*, on the other hand, possess somewhat herbaceous, fleshy stems, and have leaves of a bright green colour. The latter, though endowed with a very fleshy or succulent parenchyme, are more patient of cold than the former, and grow in several instances at an elevation of 1700 toises upon the Andes, along with the genera *Alstonia*, *Escallonia* and *Wintera*. The greater number, however, are found in the temperate regions of those mountains, at a height of between 300 and 900 toises. There they adhere sometimes to the trunks of trees, along with various species of Epidendrum and Dendrobium, and sometimes to the perpendicular faces of rocks which overhang the water. The individuals belonging to the genus *Piper* are, as this learned traveller adds, separated from the *Peperomiæ* by this mark, that wherever the latter were observed upon the Andes, the former were found to be at a greater distance from the limits of perpetual snow, by as much as 200 toises.

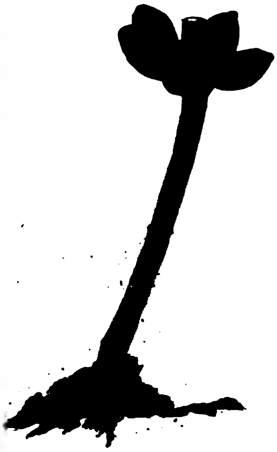
Of the genus *Peperomia* alone, M. De Humboldt enumerates no fewer than 44 species, the most of which are new. United with the genus *Piper*, as it stands in Roemer and Schultz's *Syst. Veget.* its species amount to 225, of which 77 were first discovered by MM. Humboldt and Bonpland. The present individual is also one found by them on the trunks of trees, in moist and uncultivated places, between Caraccas and Rio Guayare, at an elevation of 460 toises, flowering in January. Jacquin also states the Caraccas as its native place of growth. Introduced into our gardens, according to Mr Haworth, in 1802.

It is an elegant plant, beautifully edged and dotted with red beneath. With us it flowers in September and October, and is easily cultivated in pots filled with light soil, and kept in the stove.

As the seeds of this genus do not appear to ripen in this country, I have, in order to illustrate still more fully its generic character, copied the dissections of the fruit from the beautiful drawings of Richard, which are published in the 1st volume of Humboldt and Kunth's *Nov. Gen. et Sp. Plant.* The embryo does not appear in that figure, but this part is distinctly expressed in a species of *Piper* on the same plate, and is of so dubious a character, that, while the greater number of botanists consider it to be dicotyledonous, MM. Richard and Kunth look upon it as monocotyledonous. It consists of a minute pouch, enclosing a two-lobed body, which M. Kunth denominated the plumule, while Mirbel and others call it the entire embryo. A structure very nearly similar is found in the *Nymphæaceæ*, concerning whose classification in the Natural System the same difference of opinion has existed.

Fig. 1. Portion of a spadix with flower. Fig. 2. Back view of a single flower. Fig. 3. Pistil. Fig. 4. Stamen. Fig. 5. Berry. Fig. 6. The same with the upper part of the pericarp removed. Fig. 7. The same cut through vertically.—*All more or less magnified.* The last three figures copied from Richard.





Peperomia quadrifolium.

PEPEROMIA QUADRIFOLIA.

Four-leaved Peperomia.

DIANDRIA MONOGYNIA.—NAT. ORD. *PIPERACEÆ.*

GEN. CHAR.—*Spadix* cylindraceus, floribus undique tectus. *Stamina* duo. *Stigma* indivisum. *Bacca* monosperma. *Caulis* herbaceus.—*Humb. et Kunth.*

Peperomia *quadrifolia;* glabriuscula, caule erecto simplici terete, foliis quaternis obovato-ellipticis enerviis carnosis subtus convexis, spadicibus terminalibus axillaribusque solitariis.

Peperomia quadrifolia, HUMBOLDT et KUNTH, *Nov. Gen.* v. i. p. 69.

Piper quadrifolium, SWARTZ, *Obs.* p. 22.—WILLD. *Sp. Pl.* v. i. p. 168.—RŒM. et SCHULTZ, v. i. p. 331.

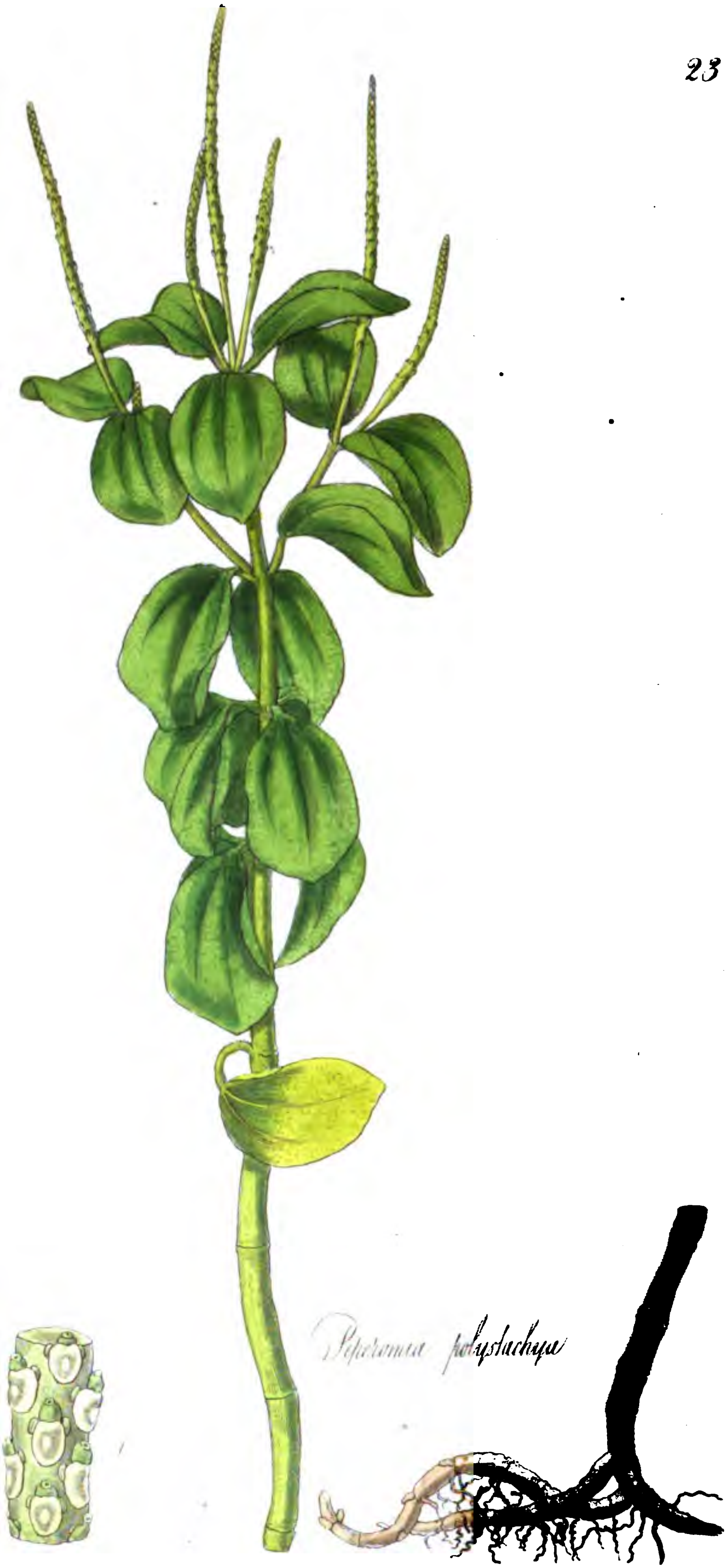
Stem about a span or more in height, erect, cylindrical, jointed, pubescent and red below, above green, and very slightly pubescent, almost glabrous. *Leaves* mostly quaternate, rarely quinate, on short footstalks, spreading, very thick, fleshy, plane above, deep green, very convex beneath, and of a paler yellowish hue; the lower ones only, and those chiefly on the underside, slightly pubescent: upper ones quite smooth, of a somewhat thinner texture, and less obtuse.

Spadix solitary, about 2 inches long, green, slender. *Flowers* nearly as in *Peperomia blanda.*

An inhabitant, according to SWARTZ, of the lofty woody mountains of South America. The celebrated traveller HUMBOLDT met with it growing in shady, warm places of the province of New Andalusia, between Cariaco and Santa Cruz. We have possessed it in the stove of our Botanic Garden for these three years.

It has not been hitherto noticed as existing in any of our gardens, nor is it likely to be prized by the generality of collectors, as it presents nothing striking to the eye of a common observer.

Fig. 1. Portion of the spadix, with flowers. Fig. 2. Single flower, with its scale.—*Magnified.*



Peperomia polystachya

PEPEROMIA POLYSTACHYA.

Many-stalked Peperomia.

DIANDRIA MONOGYNIA.—NAT. ORD. *PIPERACEÆ.*

GEN. CHAR.—*Spadix* cylindraceus, floribus undique tectus. *Stamina* duo. *Stigma* indivisum. *Bacca* monosperma. *Caulis* herbaceus.—*Humb. et Kunth.*

Peperomia *polystachya*; pubescens, foliis ter-quaternisque rhombeo-rotundatis petiolatis trinerviis reflexis.

Piper polystachyon, AIT. *Hort. Kew.* ed. 1. v. i. p. 49.; ed. 2. v. i. p. 72.—WILLD. *Sp. Pl.* v. i. p. 168.—HAW. *Succ. Pl.* p. 7.—ROEM. et SCHULTZ, *Syst. Veget.* v. i. p. 330.

Piper obtusifolium, JACQ. *Coll.* v. i. p. 141. (fide AIT.)—*Icon. rar.* v. i. t. 9. (fide WILLD.)

Root very much creeping, jointed, and sending up several stems which are from 8 to 10 inches high, rather stout, green, succulent, jointed, glabrous below, the rest pubescent, cylindrical, branched only upwards, branches ternate. *Leaves* mostly ternate, nearly an inch long, rather thick, green, pubescent, rhomboid, approaching to orbicular, obtuse, marked with 3 nerves, deflexed, petiolated, *petioles* nearly half an inch long on the lower part of the stem, very short, and scarcely existing in the upper part.

Spadices of flowers arising singly, or 2–3 together, from the extremities of the branches, green, about 3 inches long, upon short peduncles. *Flowers* numerous. *Scales* rotundato-quadrate. *Stamens* 2, roundish, yellow. *Pistil* ovate: *Stigma* sessile, radiate.

A handsome species, inhabitant of Jamaica and Santa Cruz, of a delicate pale green colour, and well distinguished by the peculiar form of the leaves from all the rest of the genus with which I am acquainted. Cultivated in the stove of the Botanic Garden of Glasgow, where it flowers in the autumn. It was was first brought to this country by Dr JOHN FOTHERGILL in 1775.

Fig. 1. Portion of a spike, *magnified*, to shew the structure of the flowers.

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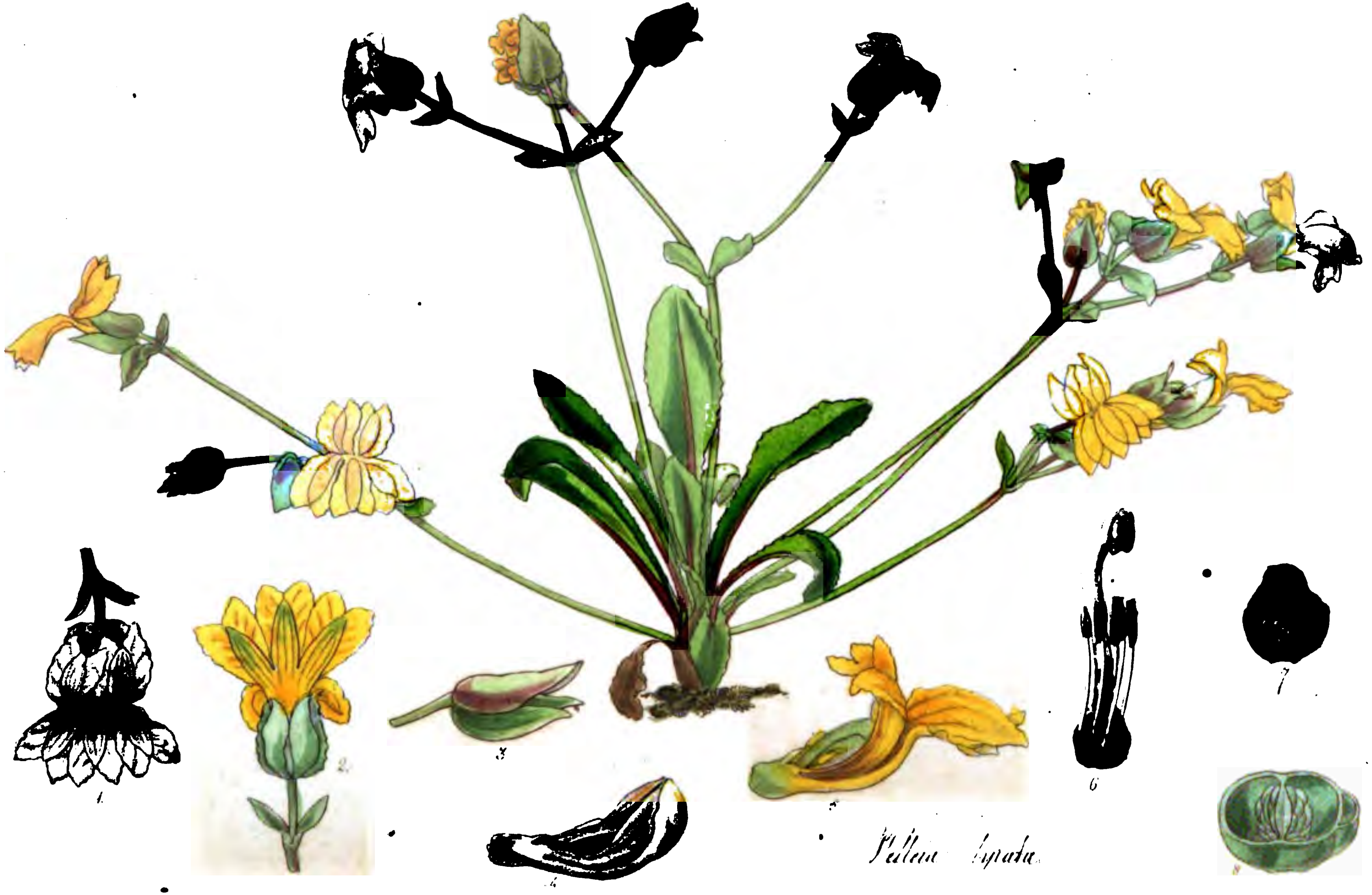

Calceu lyrata

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VELLEIA LYRATA.

Lyrate-leaved Velleia.

PENTANDRIA MONOGYNIA.—Nat. Ord. *GOODENOVIÆ*, *Br. Prodr.*

Gen. Char.—*Cal.* inferus, 3–5 phyllus, inæqualis. *Cor.* tubo basi ovario accreto, apice hinc fisso; limbo bilabiato. *Antheræ* distinctæ: *Stylus* indivisus. *Glandula epigyna* inter filamenta 2 anteriora. *Capsula* basi biloculari, valvis bipartitis. *Semina* imbricata, compressa.—*Br.*

Velleia *lyrata;* glabra, bracteis dichotomiarum distinctis, foliis lyratis basive inciso-dentatis, calycis foliolis ovato-orbiculatis.—*Br.*

V. lyrata, Br. *Prodr.* p. 580.—Sm. *in Rees' Cycl.* v. xxxvi.—*Bot. Regist.* t. 551.

V. spathulata, Juss. *in Ann. du Mus.* v. xviii. p. 17. t. 1.

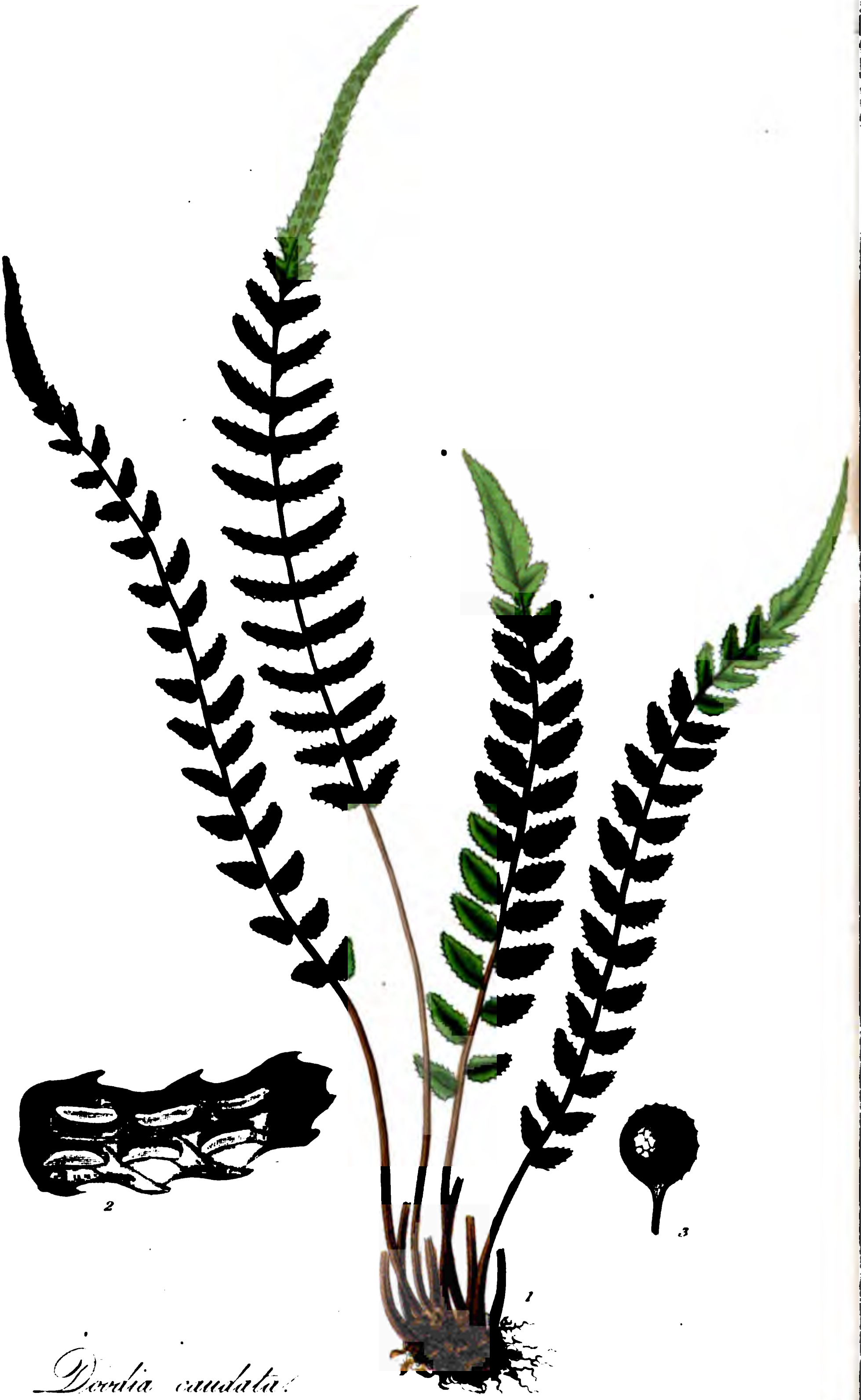
Stem scarcely any. *Leaves* radical, from 1 to 3 inches and more in length, glabrous, dentate at the margins, especially at the base, according to Brown even lyrate; sometimes entire. Midrib strong, prominent on the under side, and of a purplish-red colour. From the axils of these leaves appear the *scapes* or *flowerstalks,* which spread out in a patent manner to the length of 4 or 5 inches; they are glabrous, rounded, once or twice dichotomous, with generally an intermediate solitary flowerstalk, which, however, is sometimes abortive. At the axils of the dichotomies is usually a small tuft of hairs, and constantly a pair of ovato-lanceolate bracteas, and the same at the pedicels or partial flowerstalks.

Flowers large, handsome, bright yellow. *Calyx* patent, rather large, of 3 ovate slightly toothed leaves, of which the superior one is the larger. *Corolla* monopetalous, tubular, cleft almost to the base on its upper side, and deeply transversely 2-lipped: *upper* lip composed of 2, *lower* one of 3 bifid segments, marked with lines, green in the middle at the back, their margin broad, winged and waved. Mouth closed. *Stamens* 5, hypogynous, erect, distinct. *Anthers* oblong, yellow. *Pistil* shorter than the tube of the corolla. *Germen* roundish, ovate, with a swelling or gland in front, and adhering by its base to the base of the corolla. *Style* thickish, slightly curved, and appearing above the cleft of the corolla, cylindrical, pubescent above. *Stigma* oblique, ciliated, concave, with an elevated margin, which is brownish, and slightly two-lobed below, (*indusium* of Brown).

This pretty little plant flowered in our green-house during the month of July 1821, being raised in a mixture of peat and loam from seeds sent during the preceding year from New Holland. Its dark, smooth and shining leaves, with the long, slender spreading scapes, each of which is terminated by two or four large and bright yellow flowers, which expand at the same time, render this plant a desirable subject for cultivation. Mr Brown, who found the species in New Holland, states that it is an inhabitant of the vicinity of Port Jackson; and Smith, with whom the genus originated, tells us, under the article *Velleia* in Rees's Cyclopædia, that the present individual is the only one of the genus which has made its appearance in the European gardens. No figure of the whole plant, as far as I am able to discover, exists in any work, except that of the Botanical Register, which was recently published from a specimen far more luxuriant than the one now delineated. The flower of this plant, under the name of *V. spathulata*, is represented in the 18th volume of the *Annales du Muséum d'Histoire Naturelle*, t. 1. f. 3. and is connected with an interesting memoir written by M. De Jussieu, in which he endeavours to establish that *Lobelia* belongs to the same natural order as *Velleia*, and that the former should be the type of the order, affording the name to it.

The *Goodenia tenella* (Bot. Reg. 1137.) is not the *G. tenella* of Brown, but the *Euthyales trinervis* of the latter author, (*Velleia trinervis* of Labillardiere and Smith). In habit it is most closely allied to our plant, but differs generically in the calyx, which is tubular and 5-cleft.

Fig. 1. Front view of a flower. Fig. 2. Back view of ditto. Fig. 3. Side view of a calyx. Fig. 4. Flower-bud removed from the calyx. Fig. 5. Expanded flower, removed from the calyx. Fig. 6. Pistils and stamens; with the base of the corolla attached to the lower part of the germen. Fig. 7. Advanced germen. Fig. 8. Transverse section of the same.—*All more or less magnified.*



Doodia caudata.

J. Swan sculp.

DOODIA CAUDATA.

Caudate Doodia.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES*, DIV. GYRATÆ, *Br.*

GEN. CHAR.—*Sori* lunulati vel lineares, seriati, costæ paralleli. *Involucrum* e ramulo anastomosante venæ ortum, planum, intus liberum.

Frondes cæspitosæ, pinnatæ, pinnis dentatis quandoque coadunatis. *Sori* interdum biseriati.—*Br.*

Doodia *caudata*; frondibus pinnatis, pinnis (plurimis) distinctis leneari-oblongis obtusis serrulatis, terminali elongata lineari.—*Br.*

Doodia caudata, BR. *Prodr. Fl. Nov. Holl.* p. 151.

Woodwardia caudata, CAV. *Demonstr.* n. 658.—SWARTZ, *Syn. Fil.* p. 116.—WILLD. *Sp. Pl.* v. v. p. 417.

Fronds numerous, tufted, 6 or 7 inches in length, erect, flexuose, linear-lanceolate in their outline, terminating below in a slender dark coloured stipes, from two to four inches in length. *Rachis* similar to the stipes, but slightly pubescent. These *fronds* are composed of numerous, rather distantly placed pinnæ, in the barren frond oblongo-ovate, somewhat oblique, in the fertile ones linear-oblong, all of them spinuloso-serrate at the margins. The *terminal pinna* is remarkably lengthened out, most so in the fertile fronds, in them 2 or 3 inches long, and equally serrated with the other pinnæ. Their colour is a dirty green, and they are marked with a central rib, and lateral nerves, which are intersected by transverse ones.

Upon these transverse nerves appear the *Sori*, or *clusters of fructification*, oblong, parallel with the midrib. The *involucre* is plane, opening interiorly, and containing numerous *capsules*, which, as well as the seeds, are precisely similar to those figured and described in *Doodia aspera*, t. 8. of this work.

A native of Port Jackson and Van Diemen's Land, according to Mr BROWN; but I am not aware that it is yet known in a state of cultivation in this country. The representation here annexed was taken from a specimen preserved in the herbarium of my friend G. A. W. ARNOTT, Esq. Edinburgh.

Fig. 1. Plant, *natural size*. Fig. 2. Pinna. Fig. 3. Capsule, *magnified*.

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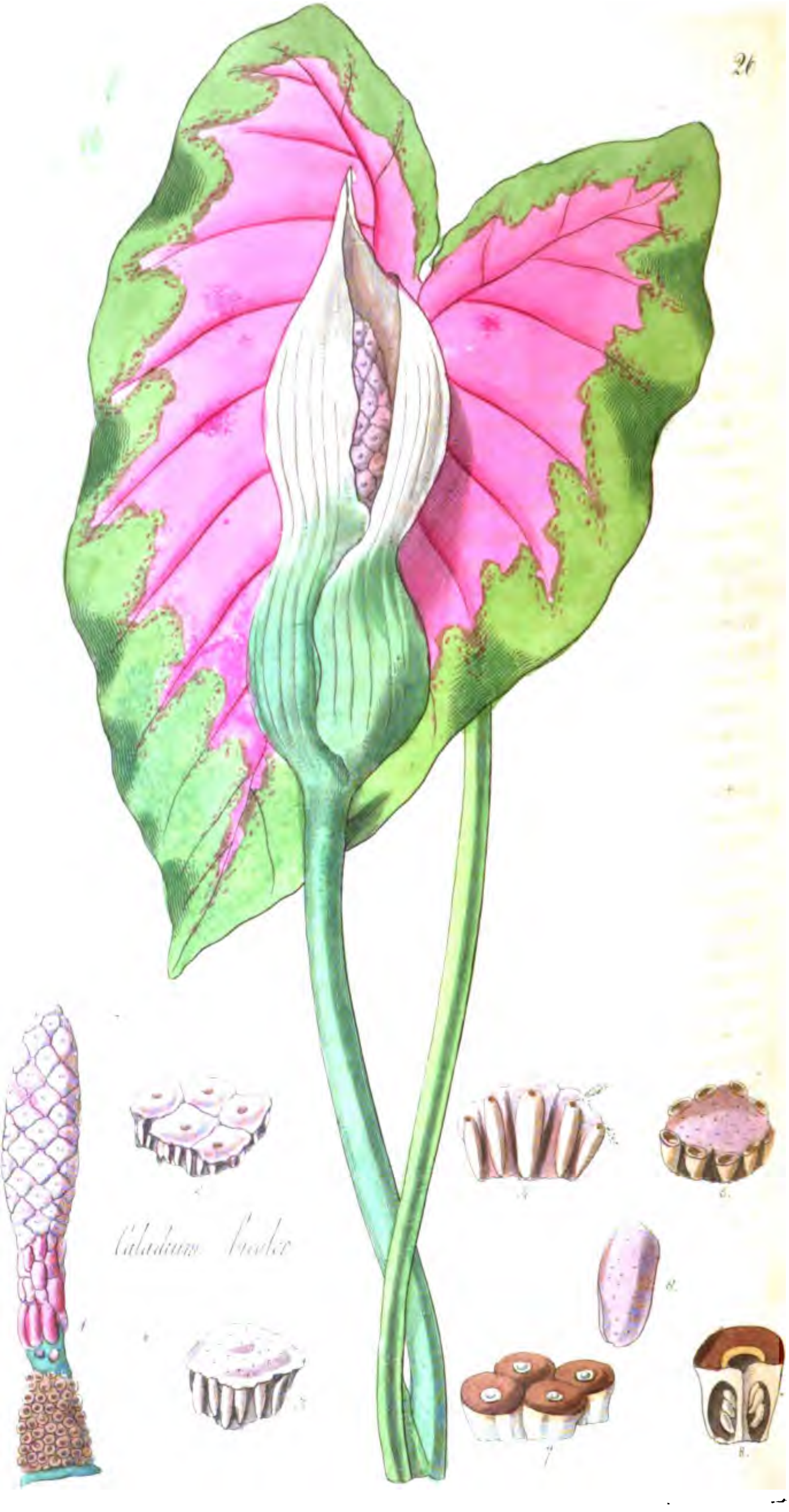

Caladium bicolor

CALADIUM BICOLOR.

Two-coloured Caladium.

MONOECIA POLYANDRIA.—NAT. ORD. *AROIDEÆ.*

GEN. CHAR.—MAS. *Cal.* 0. *Cor.* 0. *Antheræ* peltatæ, multiloculares, in spicam ad apicem spadicis compositæ. FŒM. *Cal.* 0. *Cor.* 0. *Germina* ad basin spadicis inserta. *Stylus* 0. *Bacca* uni- (bi-) locularis, polysperma.—*Willd.*

Caladium *bicolor;* acaule, foliis peltatis cordato-sagittatis disco coloratis, spadice spatha cucullata medio contracta breviore.—*Will.*

Caladium bicolor, VENT. *Pl. Rar. Hort. Cels.* t. 30.—WILLD. *Sp. Pl.* v. iv. p. 488.—AIT. *Hort. Kew.* ed. 2. v. iv. p. 311.

Arum bicolor, AIT. *Hort. Kew.* ed. 1. v. iii. p. 316.—*Bot. Mag.* t. 820.

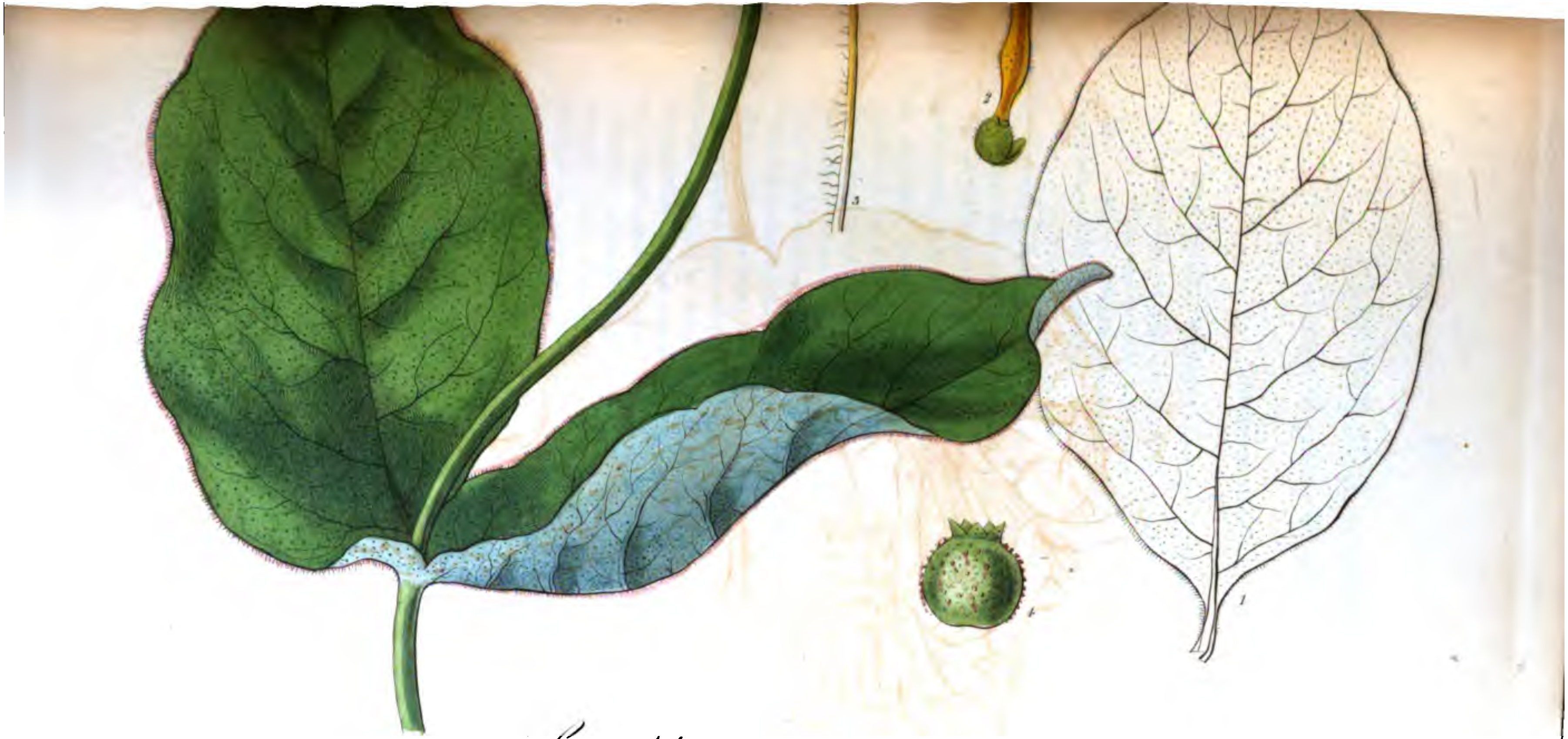
Root most probably tuberous, as in the other individuals of this natural family. *Leaves* springing from the root, few in number, cordato-sagittate, acute or slightly acuminate, waved, but entire at the margin, distinctly nerved, the margin yellowish-green, the broad disk a beautiful rose-colour; *petioles* from 4 to 6 inches long, cylindrical, sheathing at the base. *Spadix* rising upon a peduncle, which is somewhat shorter than the leaf-stalk, and surrounded by a large convolute slightly acuminated *spatha,* of a yellowish-white colour, marked with longitudinal lines, contracted near the middle, swoln, and green at the base, exceeding sometimes the spadix in length, which last is 3 or 4 inches long, club-shaped. *Anthers* occupying the upper half, yellowish-white, sessile, peltate, fleshy, nearly tetragonal, crowded. If one of these be removed, and carefully examined with a lens, it will be found dotted at the top, and indeed through the whole substance, slightly depressed in the centre, the sides occupied with several longitudinal cells, which open by a small pore beneath the margin, whence a pale yellowish minute granular *pollen* may be seen oozing out. A little below the centre of the spadix are some oblong, angular fleshy bodies, of the same colour and texture as the anther, but destitute of cells, whilst beneath, or with a short naked space intervening between them, and at the base of the spadix, are the numerous sessile, crowded *germens,* their sides irregular from mutual pressure, yellowish-white, their top a little convex, or having, in the centre, a slightly elevated, yellow ring, which is the *stigma.* The *cells* of the germen are 2; the number of the *ovules* in each cell I have generally found to be 3.

A well known plant, and native, according to WILLDENOW, of the Brazils. It has long been cultivated in the Island of Madeira, and thence was introduced, in the year 1773, to the stoves of our country, where it is become an universal favourite, on account of the beauty and singularity of its leaves.

The genus *Caladium* was established by VENTENAT, in his beautiful work on the rare plants of the garden of M. CELS, and is now generally adopted; the character of the spadix, which is covered with stamens to its extremity, by no means according with that of the genus *Arum*, in which all the species of *Caladium* had been placed. The number of individuals belonging to *Caladium* is considerable: they are all inhabitants of the tropics, and, although the present is of humble growth, yet some of its congeners are remarkable for their large stature. One of these, already figured in this work, is furnished with a stem 5 or 6 feet in height; whilst the *C. arboreum* of HUMBOLDT and KUNTH acquires a trunk of 20 feet. *C. odorum*, a new species, recently published in the *Botanical Register*, has leaves, of which the blade or lamina is from 2 to 4 feet long, and from 2 or 3 feet broad.

It flowers in the autumn and winter months.

Fig. 1. Spadix, *natural size.* Fig. 2. Anther, removed from the spadix. Fig. 3. Single anther. Fig. 4. Portion of an anther, seen from the side, to shew the cells. Fig. 5. Transverse section of an anther. Fig. 6. Abortive anther. Fig. 7. Cluster of pistils. Fig. 8. Pistil cut open vertically, to shew the cells and the ovules.—*All, but* Fig. 1., *more or less magnified.*



Caprifolium pubescens

J. Swan sculp!

CAPRIFOLIUM PUBESCENS.

Downy American Woodbine.

PENTANDRIA MONOGYNIA.—NAT. ORD. *CAPRIFOLIACEÆ.*

GEN. CHAR.—*Cal.* superus, 5–4 dentatus, et subinteger. *Cor.* tubus elongatus, limbo quinquefido, subregulari vel bilabiato. *Stamina* longitudine corollæ. *Stigma* globosum. *Bacca* distincta, trilocularis, polysperma.—*Roem. et Schultz.*

Caprifolium *pubescens;* verticillis terminalibus subcapitatis glanduloso-pubescentibus, foliis late ovato-ellipticis breviter petiolatis pubescentibus ciliatisque subtus glaucis, summis connato-perfoliatis.

C. pubescens, GOLDIE, *in Edin. Phil. Journ.* Apr. 1822, v. vi. p. 323.

Stem climbing, from 6 to 8 feet high, hairy below, nearly glabrous above. *Leaves* large, 4 inches or more in length, in opposite distant pairs, broadly ovato-elliptical, entire at the margin, distinctly nerved, with the nerves prominent beneath, bright green, and slightly pubescent above, the margins finely ciliated, beneath glaucous, and very pubescent. The lower leaves are situated upon short footstalks, the upper ones sessile or perfoliate; the uppermost, or the pair immediately beneath the flowers, are connato-perfoliate, quite glabrous above, and nearly so beneath.

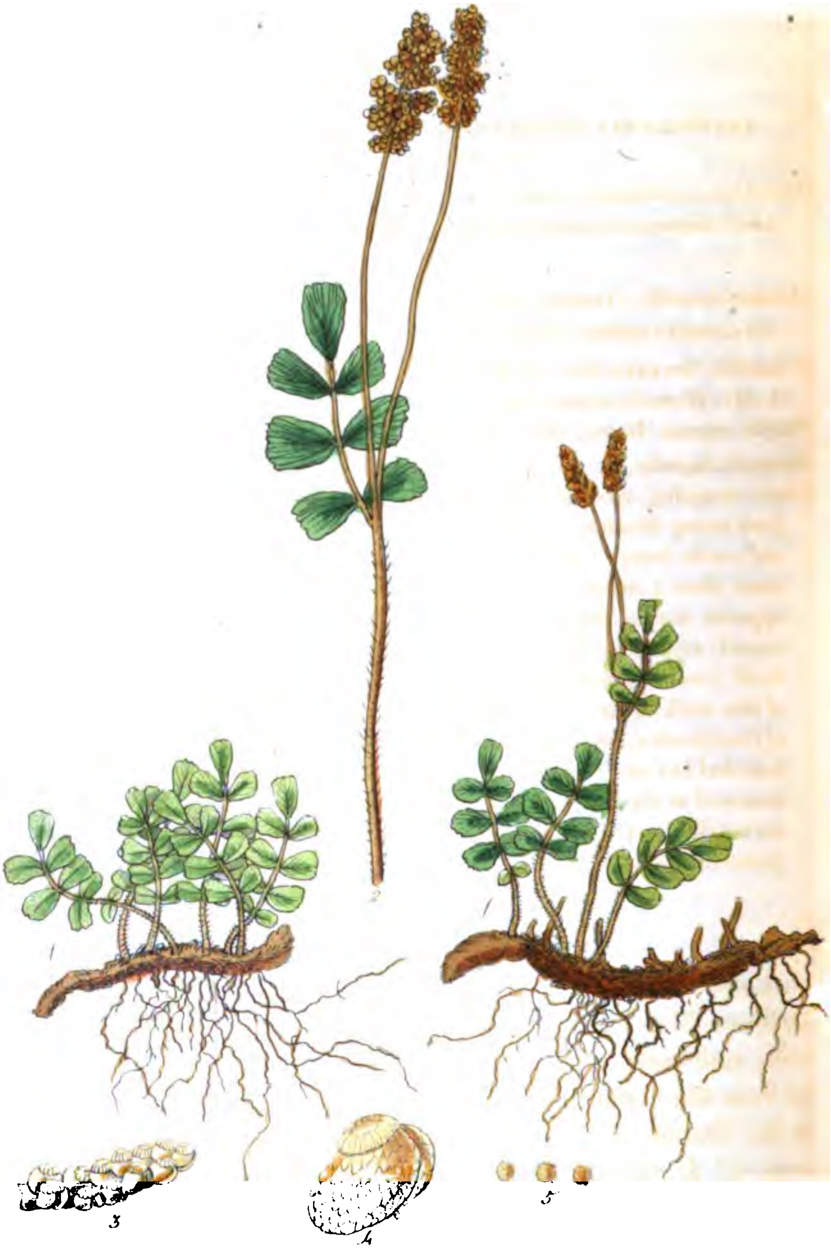
Peduncles generally in threes, terminal, with heads or whorls of beautiful deep yellow, almost orange coloured *flowers,* which are rather crowded.

Germens sessile, crowded, spherical, crowned with 5 small calycine teeth, coated with a yellow glandular pubescence, and having at their base a small ovate bractea. *Corolla* full an inch in length. *Tube* long, slender, gibbous on one side near the base, and, like the germen, strikingly glanduloso-pubescent. *Limb* two-lipped, lower lip deflexed, linear oblong, entire; upper one broad, reflexed, with 4 obtuse lobes at the extremity. *Stamens* 5: *Filaments* much exserted beyond the tube, slender, hairy on one side: *Anthers* oblong, yellow. *Style* almost equal in length with the stamens. *Stigma* globose.

I had carefully examined original dried specimens of this plant with Mr GOLDIE, previously to its publication in the description which that zealous and meritorious naturalist has given, in the *Edinburgh Philosophical Journal*, of some of the new and rare plants which he found in his travels through Canada in the year 1819; and now that I have had the opportunity of seeing living individuals cultivated in the garden of Mr SMITH, nurseryman at Ayr, I feel more than ever satisfied, that the present species is distinct from every *Caprifolium* of which a figure or description has hitherto been published. Its nearest affinity appears to be with the *Lonicera flava* of Botanical Magazine, t. 1318. (*Caprifolium Fraseri*, PURSH), but it were hardly possible that so striking a circumstance as the glandular pubescence of the germen and corolla, and that of the ciliation and pubescence of the leaves, should have been overlooked by these authors, had such marks existed in their plant; added to which, the cartilaginous margins which form one of the essential characters in *C. Fraseri*, are wholly wanting here. That species also appears to have been found only upon the Paris Mountains, South Carolina, and the Kaatskill Mountains, near New York. The *Lonicera dioica* of Botanical Register, t. 138. (*Caprifolium parviflorum*, PURSH), has its upper leaves of a similar form, and the flowers sometimes yellow; but here, again, appears no pubescence or glands, the flowers are smaller, and of a different figure, and *all* the leaves are connato-perfoliate.

Mr GOLDIE discovered this woodbine in woods near Kingston, and near Lake Simcoe, in Upper Canada, flowering in July. Living plants of it, which he brought to the nursery-ground of Mr SMITH at Monkswood Grove, Ayr, flourish well; and as they flower in June and July, as readily and in equal profusion with our British honeysuckles, there can be no doubt that this beautiful and desirable species will soon become common in our gardens, particularly as the blossoms, in addition to their fine golden hue, have an agreeable scent to recommend them.

Fig. 1. Lower petiolated leaf. Fig. 2. Flower, with its bractea. Fig. 3. stamen. Fig. 4. Germen and calyx.—*All but* Fig. 1. *more or less magnified*.



Anemia humilis

ANEMIA HUMILIS.

Dwarf Anemia.

CRYPTOGAMIA SCHISMATOPTERIDES, *Willd.*—Nat. Ord. *FILICES*,
Div. Osmundaceæ, *Brown.*

Gen. Char.—*Capsulæ* subturbinatæ sessiles, vertice radiatim striatæ, altero latere hiantes, in spicis dispositæ. *Involucrum* nullum.—*Willd.*

Anemia *humilis*; fronde pinnata, pinnis obovato-cuneatis apice truncatis crenatis subtus villosis, stipite hirto.

A. humilis, Swartz, *Syn. Fil.* p. 156.—Willd. *Sp. Pl.* v. 5. p. 90.—Schkuhr. t. 141. (from Cavanilles).

Anemia repens, Raddi, *Syn. Fil. Brazil.* p. 4.

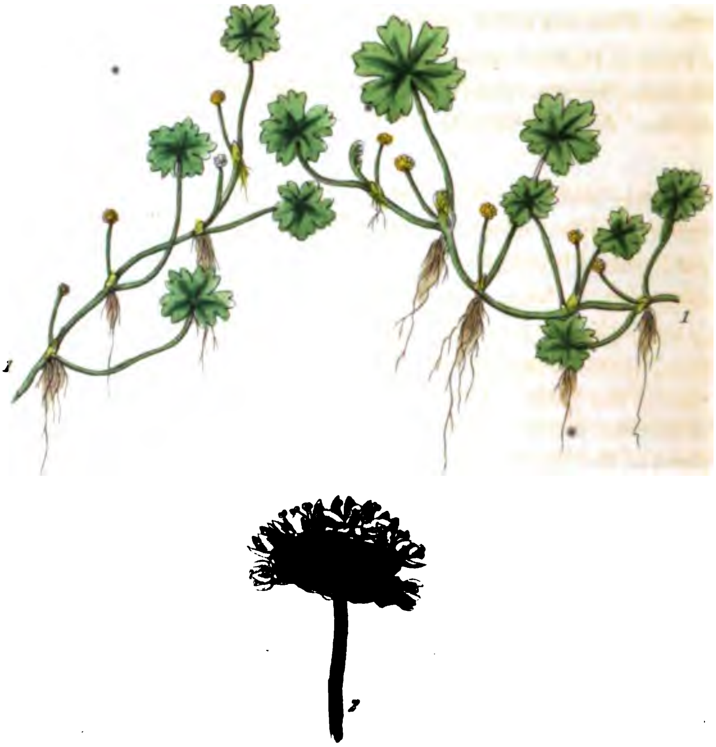
Osmunda humilis, Cav. *Ic.* v. vi. p. 69. t. 592. f. 3. (according to Willdenow).

Caudex creeping, covered with numerous, chaffy, brown scales, and sending forth many flexuose, blackish, slightly branched fibrous radicles. *Stipes* and *rachis* hairy. *Sterile fronds*, several from the same caudex, scarcely more than 2 inches long, pinnated, with about 7 or 9 obovato-cuneate, opposite leaflets, which are terminated by an odd one: these are strongly veined, crenate at the extremity, hairy beneath, scarcely so above. The *fertile frond* is supported upon a rather long stalk; and from the summit of this stalk, at the base of the frond, arise the 2 oblong, compound *spikes of fructification*, standing upon rather long, glabrous peduncles. *Capsules* crowded, but somewhat secund; each is obovato-spherical, reticulated, surmounted at the top with a concentrically striated swelling, and opening outwardly by a vertical fissure. *Seeds* numerous, spherical, beset with numerous elevated points.

I am indebted for my specimens of this pretty little fern to Professor Raddi of Florence, who gathered it in clefts of old walls, and especially near the aqueduct which conveys the water from the mountains of Corcovado to the city of Rio Janeiro in the Brazils. That gentleman has described it under the name of *A. repens*, quoting doubtfully the *A. tenella* of Cavanilles; but I think there cannot be a question of its identity with the *Osmunda humilis* of Cavanilles, whose figure is copied into Schkuhr's excellent work on *Filices*. With regard to its being the *tenella*, Raddi has given his reasons for thinking it may be so, in these words: "The common length of the plant is from 2–3 inches, but when it is found in cold, dark, and somewhat moist situations, it attains a height of 9 inches: this, however, rarely happens; and then the pinnules are deeply laciniated, the root is thicker, and always hairy;" which characters bring the present plant near to the *tenella*.

The whole genus is a very beautiful one, and was first distinguished by Swartz from that of *Osmunda*, with which it agrees in many points. Here, however, there is a concentrically striated swelling upon the top of the capsule, very much indeed approaching to the nature of an annulus, and not a transversely striated tubercle, as in *Osmunda*. The genus *Botrychium* has nothing of the kind, although in habit these two genera are similar. In all the species of *Anemia* that have their spikes of fructification arising from the frond, these spikes are geminate.

Fig. 1. Plants, *natural size*. Fig. 2. Part of a fertile frond. Fig. 3. Branch of the compound spike. Fig. 4. Capsule. Fig. 5. Seeds,—*more or less magnified*.



Hydrocotyle nitidula

Engd by J. Swan Glasgow

HYDROCOTYLE NITIDULA.

Shining Pennywort.

PENTANDRIA DIGYNIA.—NAT. ORD. *UMBELLIFERÆ.*

TRIB. II. HYDROCOTYLINÆ. *Umbellæ imperfectæ. Involucra obsoleta aut nulla. Folia cum petiolo confluentia subsimplicia.*

GEN. CHAR.—*Umbellæ* imperfectæ. *Fructus* raphe dorsoque angustis, hoc tricostato, lateribus compressis, subrotundi, cortice plerumque articulato-venoso. *Folia* subrotunda.—*Spreng.*

Hydrocotyle *nitidula;* foliis orbiculato-reniformibus 5–7 lobatis lobis trifidis, floribus capitatis subsessilibus, capitulo pedunculato, pedunculis petiolo brevioribus.

H. nitidula, RICH. *Monogr. du Gen. Hydroc.* p. 60. t. 63. f. 33.

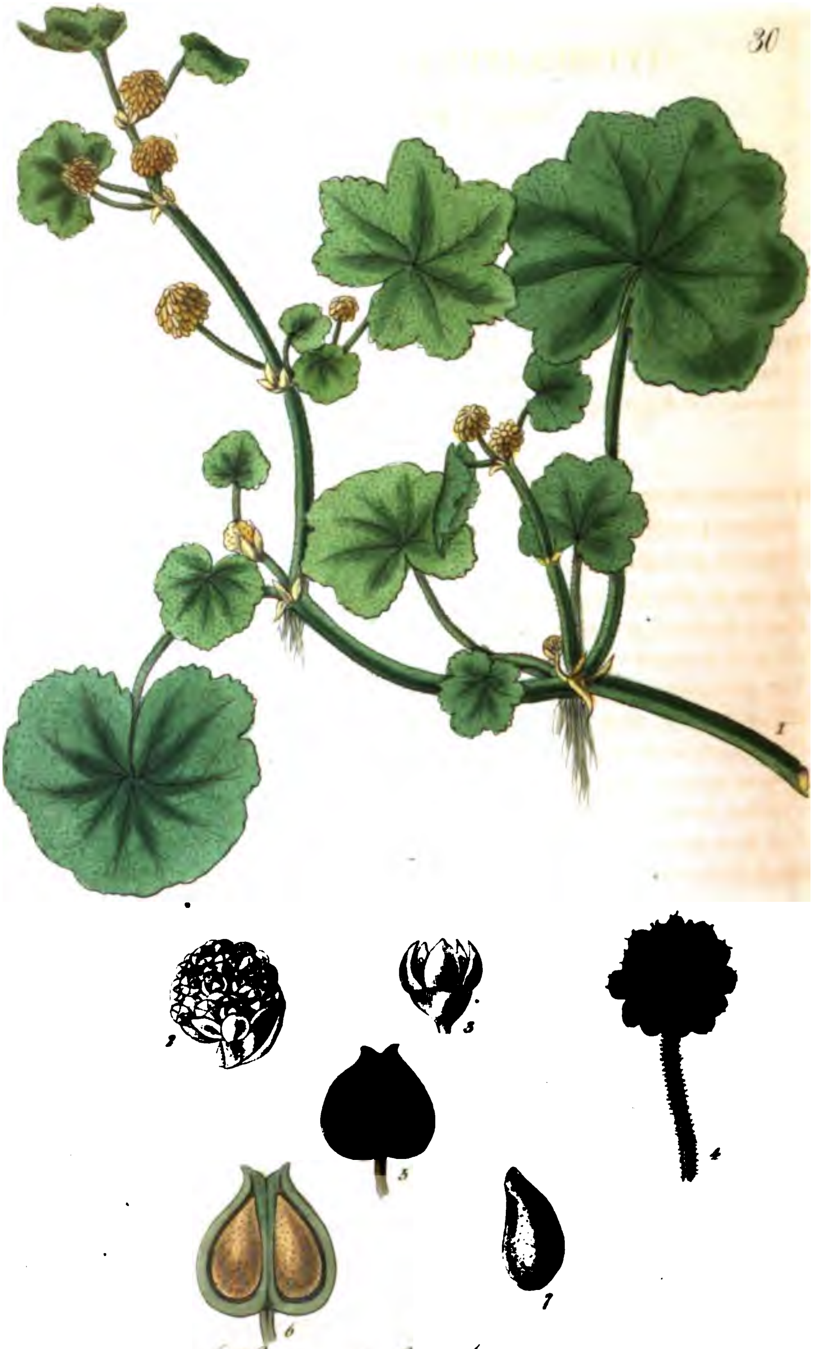
Stems a few inches in length, subsimple, slender, and, as well as the whole plant, perfectly smooth, and somewhat shining, creeping, throwing out roots at the joints. *Leaves* solitary, or rarely two from the same point of the stem, scarcely more than half an inch in diameter, orbicular, but cut down to the insertion of the footstalk at the base, so as to be somewhat reniform, 5 or 7 cleft, nerved, segments subcuneate, trifid at the extremity, petiolated, the petiole about an inch and a half or nearly two inches long, terete, with 2 ovate stipules at the base.

Heads of flowers upon axillary peduncles, which are not above half the length of the petioles of the leaves, very slender, composed of about 10 crowded flowers, each having an ovate scale or leaflet of the involucre at its base. *Germen* ovate. *Petals* greenish-white.

Specimens of this delicate little species of *Hydrocotyle,* agreeing in all respects with the *H. nitidula* of RICHARD, were sent to me from the Botanic Garden at Liverpool, having been there raised from seeds received from Russia under the name of *H. Sibthorpioides,* but from what country originally derived did not appear. RICHARD gives the *H. nitidula* as a native of Java, and speaks of it as being closely allied to the

Australasian *H. pulchella* of Brown's MS., differing from it in the number of the lobes of the leaf, these being decidedly tridentate, and in the common peduncle being shorter than the petiole. From the true *H. Sibthorpioides* it is perfectly distinct, as it appears to be also from all the described species of the genus.

Fig. 1. Plant, *nat. size.* Fig. 2. Head of flowers, *magnified.*



Hydrocotyle Nepalensis

Engd by J. Curtis Islington

HYDROCOTYLE NEPALENSIS.

Nepal Pennywort.

PENTANDRIA DIGYNIA.—NAT. ORD. *UMBELLIFERÆ.*

TRIB. II. HYDROCOTYLINÆ. *Umbellæ imperfectæ. Involucra obsoleta aut nulla. Folia cum petiolo confluentia subsimplicia.*

GEN. CHAR.—Umbellæ imperfectæ. *Fructus* raphe dorsoque angustis, hoc tricostato, lateribus compressis, subrotundi, cortice plerumque reticulato-venoso. *Folia* subrotunda.—*Spreng.*

Hydrocotyle *nepalensis;* foliis orbiculato-reniformibus 7-lobatis crenatis, floribus (monoicis?) numerosis subsessilibus dense capitatis, capitulis breviter pedunculatis.

The *stems* of this plant, which are rather stout in proportion to the size of the individual, are nearly a foot in length, creeping, somewhat branched, and covered with short, rusty-coloured hairs. *Leaves* fasciculated, 3 or 4 together, very much resembling those of *Alchemilla vulgaris,* and the largest of them 2 inches across, orbiculato-reniform, 7 or rarely 9-lobed, with as many nerves which throw out lateral branches, the margins crenate, hispid, especially upon the nerves, petiolated; *petiole* about 3 inches long, terete, beset with reddish hairs, and having at the base 3 or 4 acute stipules.

Heads of flowers of two kinds, some almost entirely sessile, and appearing to be constantly abortive, with yellow flowers, destitute of perfect germens, and having even the anthers often abortive; and fertile flowers, which are elevated upon peduncles about ½ or ¾ of an inch long, hispid with short reddish hairs. These I have only seen in an advanced state, when the corolla and anthers, if there were any, had fallen away, and the fruit was nearly perfected.

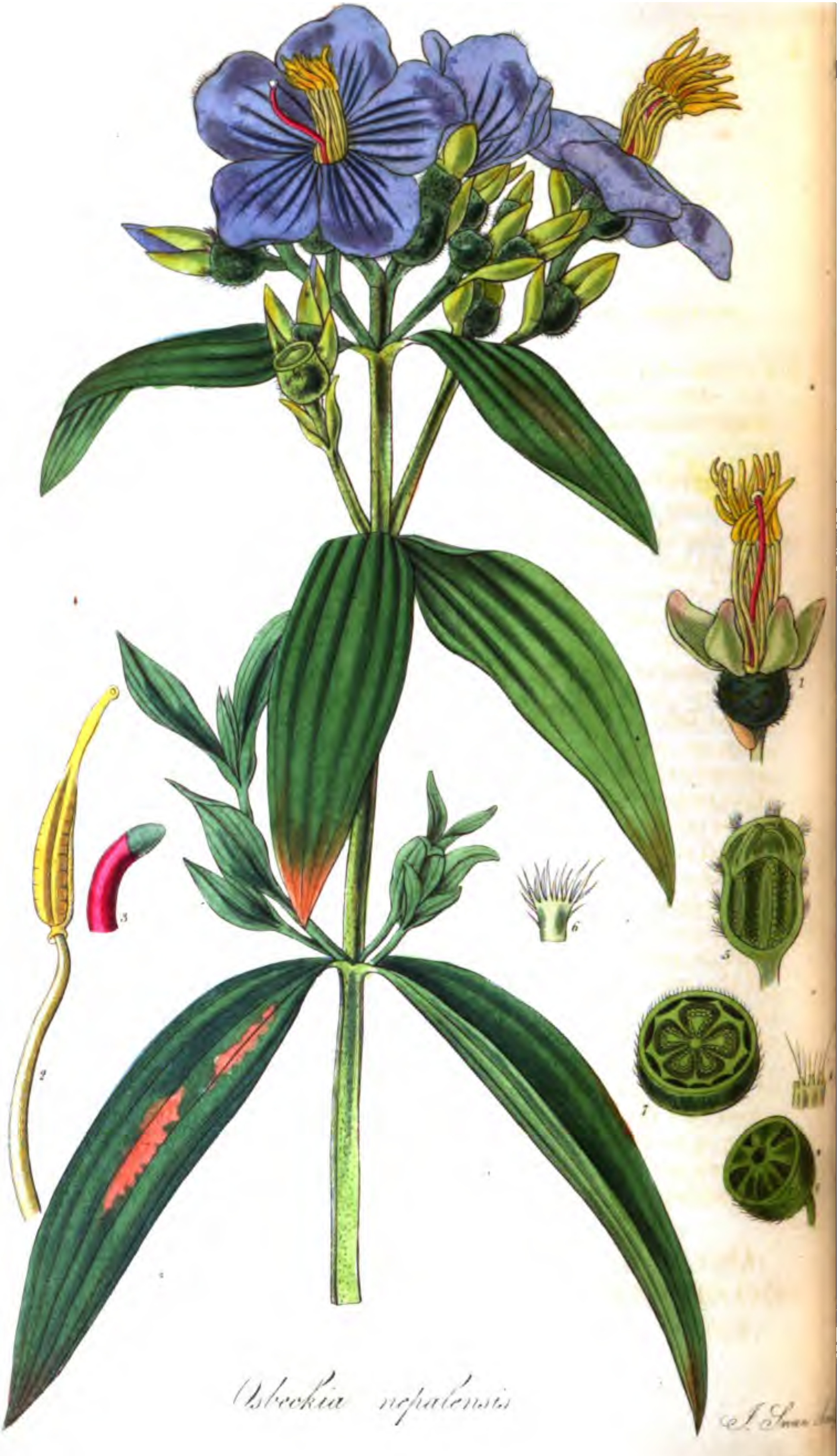
In both, the flowers are numerous, 30 or 40, collected into an exactly spherical, extremely compact head. The abortive flowers are almost all sessile, the fertile ones upon short pedicels. *Fruit* rotundato-cordate, compressed, didymous, with a faint depressed line on each lobe. *Seeds* pendulous, brown, slightly punctated.

Were not the name pre-occupied, I should gladly have applied to the present species the appellation of *Hydrocotyle al-*

chemilloides. The individual to which it approaches the nearest, is, doubtless, the *H. capitata* of PETIT THOUARS, an inhabitant of Tristan d'Acunha; nor do I find any difference, except in the great hispidity of the stem and petioles of this latter; upon the petioles, especially, the hairs standing out horizontally to twice or thrice as great a length as the petiole is broad, whereas in my species, there are only short reddish hairs, giving the plant a rigidly downy appearance. THOUARS even describes his *H. capitata* as having, like the *H. Nepalensis*, " fleurs monoiques par avortement."

Captain CARMICHAEL, in his excellent paper on the *Natural History of Tristan d'Acunha*, published in the 12th volume of the Linnæan Transactions, has likewise given a good description of the *H. capitata*, and mentions a circumstance which equally exists in this plant, namely, the strong carrot-like taste of the leaf.

Fig. 1. Portion of the plants, *natural size*. Fig. 2. Head of abortive flowers. Fig. 3. Single flower. Fig. 4. Head of seed-vessels. Fig. 5. Single seed-vessel. Fig. 6. The same cut open, to shew the seeds. Fig. 7. Single seed.—*All but* Fig. 1. *more or less magnified.*



Osbeckia nepalensis

J. Swan

OSBECKIA NEPALENSIS.

Nepal Osbeckia.

OCTANDRIA MONOGYNIA.—Nat. Ord. *MELASTOMACEÆ*, *Br.*—MELASTOMÆ, *Juss.*

Gen. Char.—*Cal.* 4-fidus; lobis squama ciliari interstinctis. *Cor.* 4–5 petala. *Antheræ* rostratæ. *Caps.* 4–5 locularis, calycis tubo truncato cincta. *Recept.* compressum, semiovatum. (Stam. 8–10).—*Pers.*

Osbeckia *nepalensis*; foliis lanceolatis sessilibus, calycis tubo ciliato-squamoso.

Stem 1½ foot high, erect, branched, quadrangular, rough, with short appressed hairs. *Leaves* opposite, sessile, lanceolate, coriaceous, rigid, deflexed, with deep longitudinal nerves, the margin entire, the surface like that of the stem, rough, with appressed hairs, and often marked with brown spots.

Flowers large, handsome, in terminal and lateral axillary panicles or corymbs. *Peduncles* one or two inches long, square, as well as the short pedicels, which latter are furnished with ovate bracteas. *Calyx* composed of 5 caducous segments, tube ovate, green, covered with subquadrate appressed scales, ciliated at the margin, and remarkably so at the extremity. Four or five of these scales terminate the tube, are spreading and deciduous: the segments of the calyx are ovate, patent, yellow-green, smooth, ciliated at the margin. *Corolla* of 5 beautiful purplish rose-coloured, patent, obovato-rounded petals, inserted at the mouth of the tube of the calyx, slightly waved, ciliated at the extremity, having a small erect tooth or scale at the centre of the base of each petal, and another alternating with the petals, (10 in all). *Stamens* 10, inserted likewise at the mouth of the tube. *Filaments* slightly curved, yellowish, rather long. *Anther* long, yellow, curved, articulated with the filament, slightly corrugated transversely. *Cells* two, but united above into one lengthened tube, having a pore at the extremity whence the pollen is discharged. *Pistil: Germen* ovate, immersed in the calyx, and attached to it by 10 longitudinal lines (Fig. 7.), 5-celled, 5-lobed, and hairy at the top. *Style* as long as the filaments, red, caducous. *Stigma* ovate, pubescent, green. *Capsule* opening by 5 longitudinal pores, and remaining inclosed within the tube of the calyx.

Only two species of *Osbeckia* (*O. chinensis* and *O. zeylanica*) appear to have been known, until Sir James Smith described five additional species in **Rees's** Cyclopædia, which had been gathered by the celebrated Dr A. **Afzelius** at Sierra Leone. With the characters of none of these will our plant accord, which has been raised from seed, sent from Nepal by Dr **Wallich**, both at the Botanic Gardens of Glasgow and of Edinburgh. It first flowered in the magnificent new establishment of the latter city in June 1822, and it was there that the accompanying figure was made.

I possess dried specimens of this handsome plant, from Katmandu in Nepal, which I received both from Dr **Wallich** and from Sir **James Smith**. The latter gentleman has sent me likewise another species of the genus, from the same country, differing from the present in its shorter leaves, and a calyx entirely concealed by thick bristle-shaped processes. This is the *O. crinita* of **Smith's** MS. and should, when published, bear that name.

The stamens vary from 8 to 10 in this genus, which many botanists scarcely consider sufficiently distinct from *Rhexia*, but which **Smith** considers may be sufficiently marked by the " permanent simple teeth of the calyx, destitute of intermediate scales." Many plants have, however, according to Mr **Brown**, been arranged among the *Rhexiæ* which do not belong to them; and this author even goes so far as to say, that probably no genuine species of *Melastoma*, and certainly none of *Rhexia*, has yet been published in M. **Bonpland's** splendid and valuable monographs of these two genera. The original species of the Linnæan genera *Melastoma* and *Rhexia*, the same author, however, believes will be found to possess generic characters sufficiently distinguishing them from the greater part of the plants that have been since added to them by various authors.

As an Order, Mr **Brown** assures us that *Melastomaceæ* is only to be distinguished from *Myrtaceæ* by the absence of the pellucid glands of the leaves and other parts, which exist in all the genera really belonging to that extensive family.

Fig. 1. Flower from which the petals have been removed. Fig. 2. Stamen. Fig. 3. Portion of the style and stigma. Fig. 4. Base of a petal. Fig. 5. Germen cut through vertically. Fig. 6. Scale of the calyx. Fig. 7. Germen cut through transversely. Fig. 8. Capsule bursting.—*All more or less magnified.*

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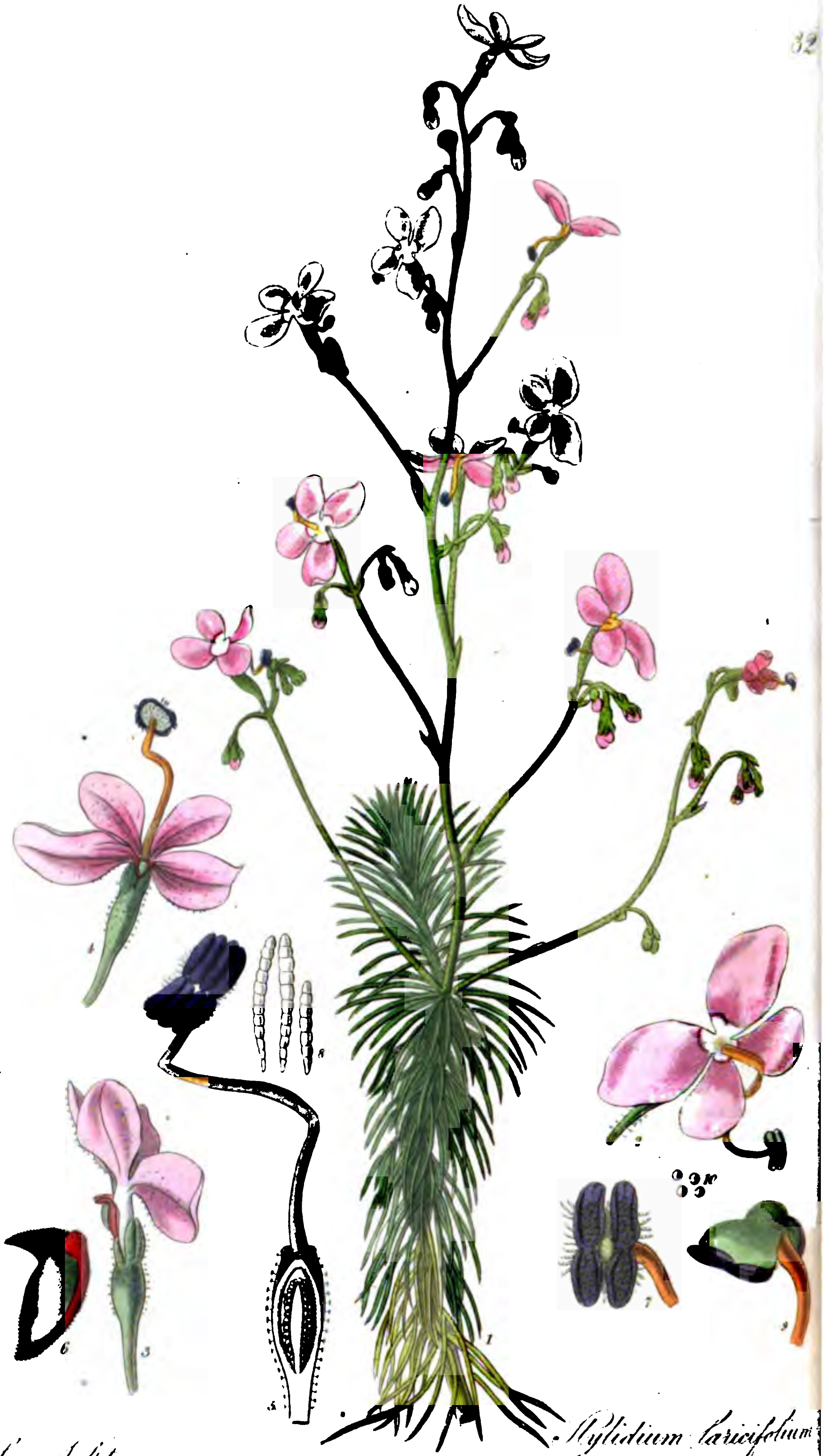

J. Swan Sculpt

Stylidium laricifolium

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STYLIDIUM LARICIFOLIUM.

Larch-leaved Stylidium.

GYNANDRIA DIANDRIA.—NAT. ORD. *STYLIDEÆ, Br.*

GEN. CHAR.—*Calyx* bilabiatus. *Corolla* irregularis, 5-fida, lacinia quinta (labello) dissimili minore, deflexa (raro porrecta) reliquis patentibus (raro geminatim cohærentibus). *Columna* reclinata, duplici flexura; *Antheris* bilobis, lobis divaricatissimis; *stigmate* obtuso indiviso. *Capsula* bilocularis, dissepimento superne quandoque incompleto.—*Br. in Prodr. Fl. Nov. Holl.*

DIV. I. *Capsula ventricosa, subovata, nunc sphærica vel oblonga.*
Subdiv. E. *Caulis suffruticosus, foliis sparsis, crebris.*

Stylidium *laricifolium;* foliis setaceo-linearibus sessilibus pilosiusculis (vel glabris) fauce nuda, labello appendiculato.—(BR. sub *S. tenuifolio*).

S. laricifolium, RICHARD, *in Pers. Syn. Pl.* v. ii. p. 210.—JUSS. *in Ann. du Mus. d'Hist. Nat.* v. xviii. p. 19. t. 3.—*Bot. Register,* t. 550.

S. tenuifolium, BROWN, *Prodr. Fl. Nov. Holl.* p. 570.—*Bot. Mag.* t. 2249.—SMITH, *in Rees's Cycl.*

Stem 8–10 inches to a foot high, erect, simple, or throwing out one or more small branches from the extremities, naked below, above clothed with numerous linear-setaceous dark-green *leaves,* which are patent or reflexed, glabrous in my plants, slightly hairy according to Mr BROWN.

From the extremity of the stem springs a much-branched graceful panicle, about equal in length to the stem, everywhere covered with minute pedunculated glands, and, at the base of each ramification, furnished with a small lanceolate bractea.

Flowers upon rather short glandular pedicels. *Germen* inferior, oblongo-ovate, glandular, tapering below, surmounted by an imperfectly 2-lipped calyx, of 5 erect, lanceolate, obtuse, glandular segments. *Corolla* irregular, 5-cleft, 4 of the segments obovate, spreading, 2 larger than the other two, of a fine rose colour, yellowish-white at the base, with an imperfect sanguineous ring or border, the back of which has many pedicellated glands; the 5th segment or *labellum* resembling a small heart-shaped deflexed gland, with a thickened, deep red, minutely tuberculated margin; the disk convex, greenish, smooth, above, at the sides having two spreading red horn-like processes. The *tube,* to the back of which this is fixed, is rather short, white, slit on one side.

Column of fructification about as long as the corolla is broad, reddish-brown, filiform, compressed, with two curvatures, highly elastic, terminated by the 2 large, transverse, deep purple, 2-lobed *anthers,* beset at the back with many pellucid jointed white hairs. The lobes open longitudinally, and after a portion of the *pollen* is discharged, they spread, or even become reflexed in a remarkable manner, exposing, what was before concealed by the approximation of their lobes, namely, the hemispherical glandular *stigma* (Fig. 9.) *Pollen* spherical, yellowish-green.

So admirably have the characters of this genus been illustrated, both by Mr BROWN in his incomparable *Prodromus of the Flora of New Holland,* and in the equally excellent *Illustrations* of M. BAUER, that I should hardly have thought it necessary to publish the accompanying figures, were it not that the extreme scarceness of the two works in question puts it out of the power of naturalists in general to have recourse to them. The necessity for their publication may be considered as still less, now that engravings of this species have appeared in the *Botanical Magazine* and *Botanical Register*. These were given to the world since my drawings had been executed; but these last seem to me to contain more important analyses of the parts of fructification than either of the excellent works now mentioned.

The irritability of the column of fructification, which is perhaps more evident in this individual of the genus than in any other, is a well known circumstance. It is bent, as Mr BROWN describes it, "duplici flexura;" or, in the words of Sir JAMES SMITH, it is "curved, and recurved;" and if this column be touched ever so slightly, or if any part of it be pressed with the finger, it immediately starts over to the other side of the flower, and is supposed, by this process, to scatter the pollen from the anthers to the stigma.

The genus *Stylidium* was first established by SWARTZ; but Sir JAMES SMITH had the honour of proposing the name, and at the same time communicating specimens to the Swedish Professor and to LABILLARDIERE. It is now universally adopted, although the latter author, in a memoir in the *Annales du Muséum d'Histoire Naturelle*, called the genus *Decandollea*; and SMITH himself, in Exotic Botany, published two species, with excellent figures, under the name of *Ventenatia*.

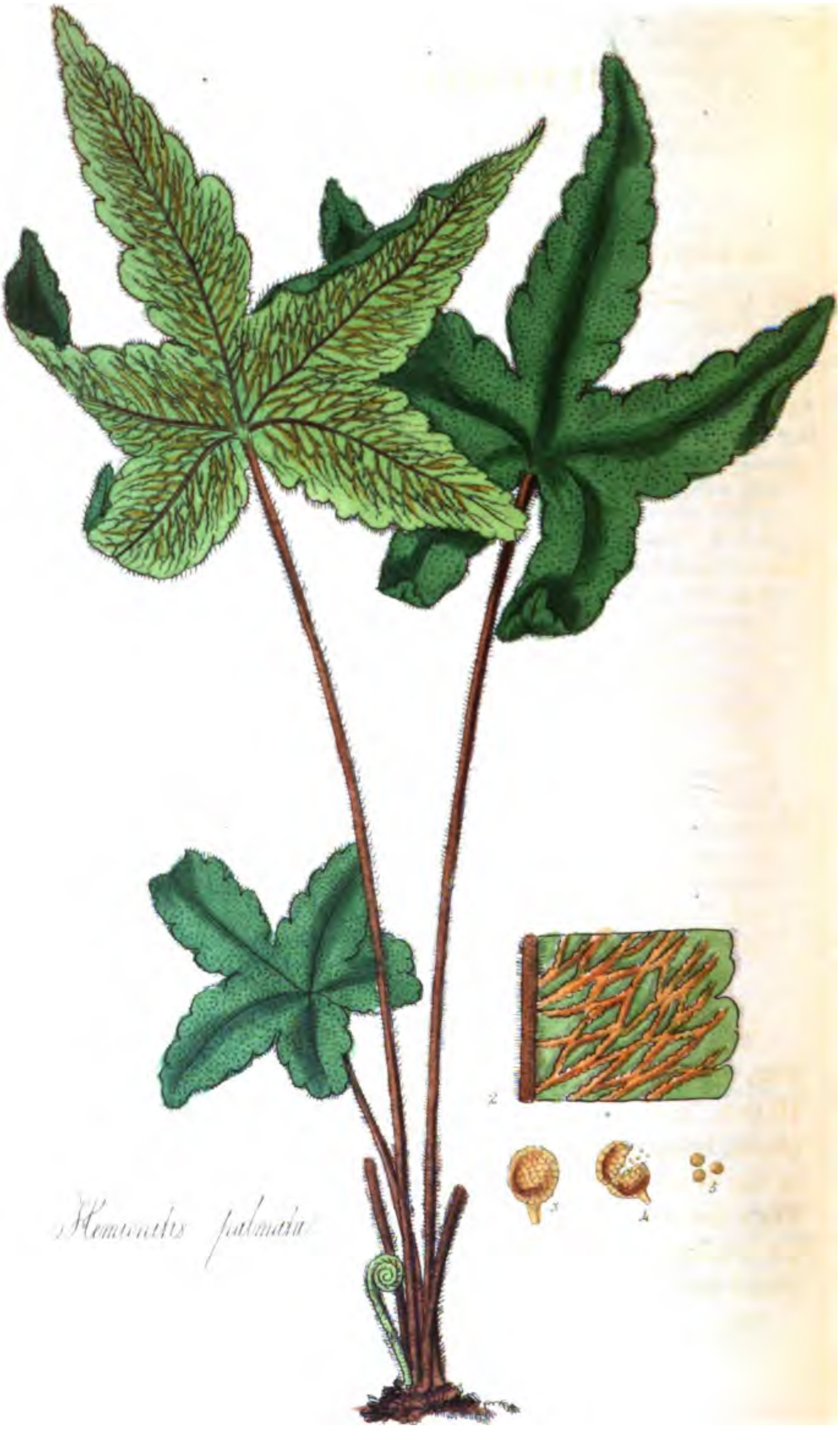
As an order, *Stylideæ* is placed by Mr BROWN near *Campanulaceæ*, on the one hand, and *Goodenoviæ* on the other, differing from the former in its "reduced number of stamens, and the remarkable and intimate adhesion of their filaments with the style, through the whole length of both organs;" and from the latter, (as also from *Campanulaceæ*), "in the imbricate æstivation of the corolla, and, where its segments are unequal, in the nature of the irregularity."

It is curious that RICHARD, and following him JUSSIEU, should have considered the *labellum* of BROWN as the *stigma;* and as such have figured and described it in the 18th volume of the *Annales du Muséum*, both in *Stylidium laricifolium* and *S. Armeria* of LABILLARDIERE. This idea is satisfactorily controverted by our learned countryman, in his *General Remarks* in the Appendix to Captain FLINDERS' Voyage, which is transcribed by Mr GAWLER in the *Botanical Register*.

Among a no less number than 45 species of *Stylidium* described in the *Prodr. Fl. Nov. Holl.* only two approach to the nature of shrubs, one of which is our *S. laricifolium* (*S. tenuifolium*, BROWN). It is, like nearly all the others, an inhabitant of the neighbourhood of Port Jackson, and is readily cultivated in a mixture of loam and peat-earth, increasing by cuttings, and proving a great ornament to the greenhouse, as it flowers in the early part of spring.

Drawn from the collection in the Botanic Garden of Glasgow.

Fig. 1. Portion of a plant, *natural size*. Fig. 2. Front view of a flower. Fig. 3. Side view of ditto. Fig. 4. Back view of the same. Fig. 5. Germen, and column of fructification. Fig. 6. Labellum. Fig. 7. Summit of the column, with the anthers bursting. Fig. 8. Hairs from beneath the anthers. Fig. 9. Summit of the column, with the anthers spread, having discharged their pollen; the stigma protruded. Fig. 10. Pollen. —*All more or less magnified.*



Hemionitis palmata

HEMIONITIS PALMATA.

Palmated Hemionitis.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES*, *Juss.* DIV. I. GYRATÆ, *Br.*

GEN. CHAR.—*Capsulæ* venis reticulatis frondis insertæ. *Involucrum* nullum. —*Willd.*

Hemionitis *palmata;* hirsuta, fronde pentagona profunde quinquefida, segmentis lanceolatis crenato-lobatis, stipite elongato.

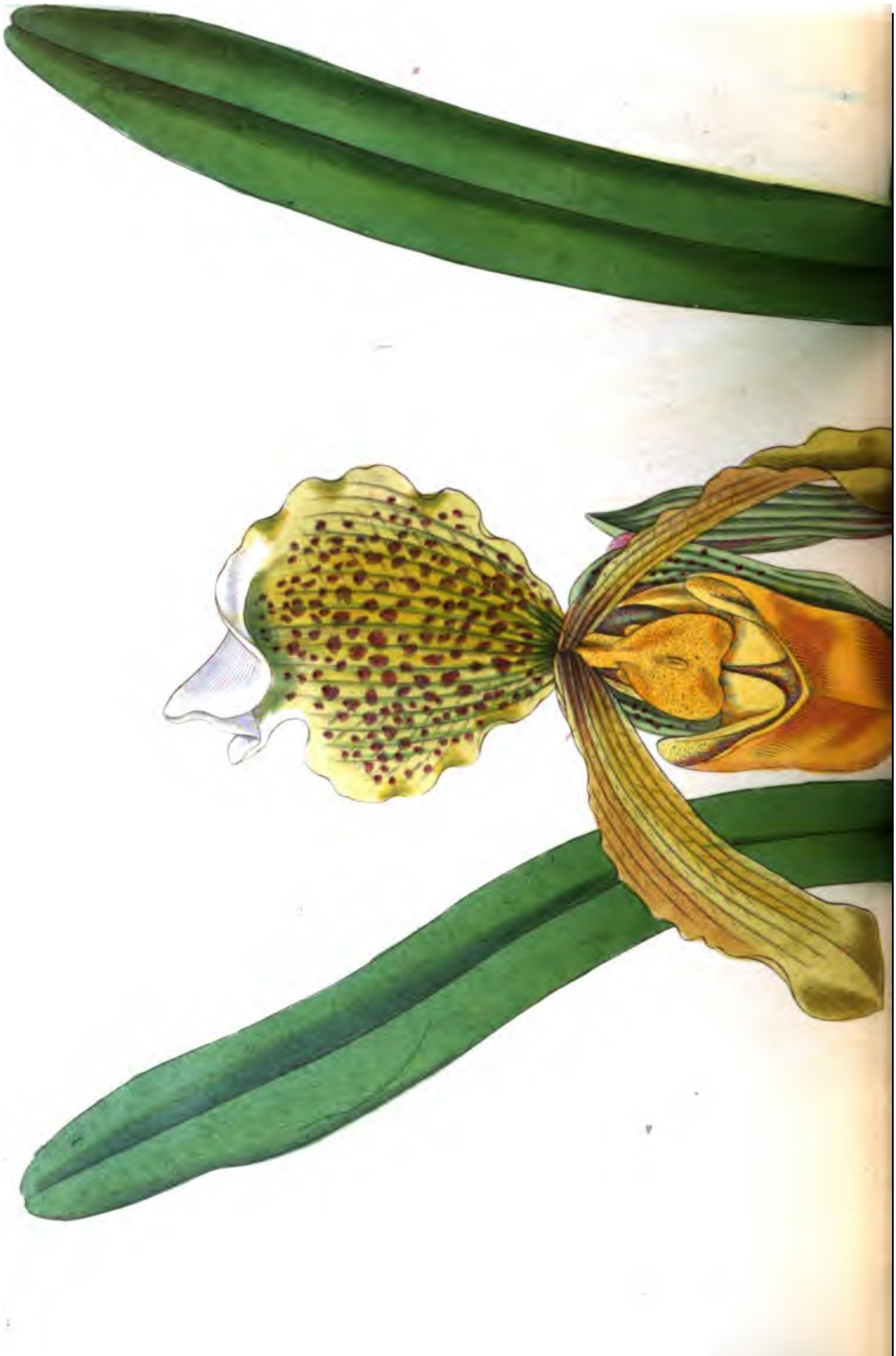
Hemionitis palmata, LINN. *Sp. Pl.* p. 1535.—SWARTZ, *Syn. Fil.* p. 20.—LAM. *Illust.* t. 868. f. 2.—WILLD. *Sp. Pl.* v. 5. p. 129.—AIT. *Hort. Kew.* ed. 2. v. 5. p. 502.

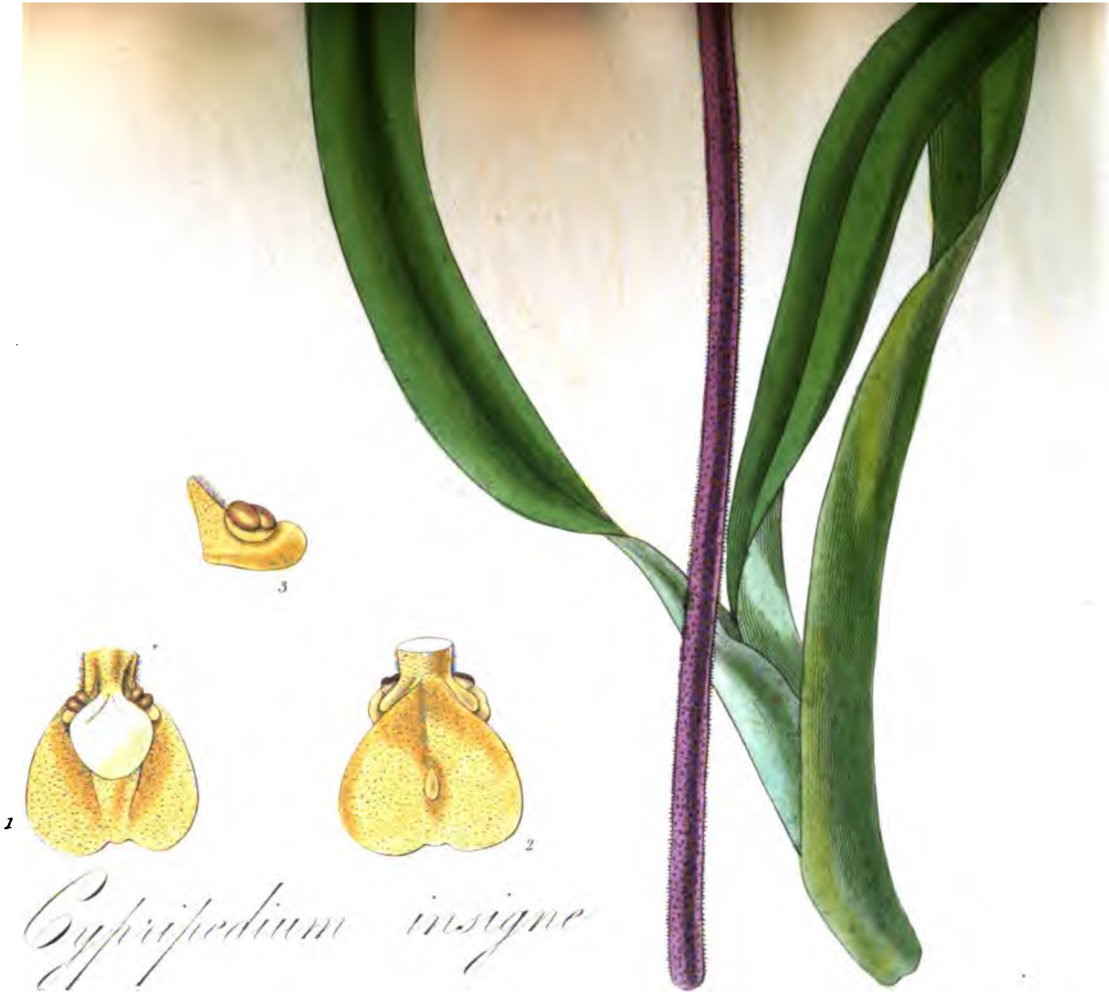
Root of many long, branching, scarcely hairy, fibres, (Sw.) *Stipes* many from the same root, 4–6 inches long, erect, about as thick as a crow's quill, purplish-brown, covered with ferruginous patent hairs. *Frond* 3–4 inches in length, somewhat cordate in its circumscription, deeply divided into 5 segments which spread out so as to form a pentagon; of these the 3 superior lobes are the longest, all are rather broadly lanceolate, hairy, dark green above, paler beneath, the centre furnished with a strong purplish rib, prominent on the underside, the margins crenato-lobate, the lobes obtuse, fringed.

Fructification confined to the numerous branching anastomosing lateral veins, forming raised lines, and destitute of involucrum. *Capsules* numerous, at length confluent, and covering almost the whole back of the frond, spherical, pedicellated, reticulated, with an incomplete annulus. *Seeds* or sporules minute.

The *Hemionitis palmata* was introduced to our gardens from the West Indies in the year 1793, by Rear-Admiral BLIGH, and it deserves a place in every collection of stove-plants, being no less remarkable in the shape of its frond, than in the lines of fructification, which cover the underside of it like a network of a rich brown colour. It is readily kept in a pot of common earth, with a mixture of peat, and with the roots placed between two broken pieces of flower-pot, with the concave sides inwards. All the Ferns love water, and the tropical species flourish best under the shade of the larger stove plants. The present one sheds its seeds freely, from which arise numerous new individuals; thence it is easily propagated.

Fig. 1. Plant, *natural size.* Fig. 2. Portion of the frond, with the lines of fructification. Fig. 3. Capsule; and, Fig. 4. The same burst, and in the act of discharging the seeds. Fig. 5. Seeds, *magnified.*





Cypripedium insigne

J. Swan sculpt.

Beneath this, at its base, are 2 short, lateral processes or filaments, to the side of each of which is attached a single, sessile, 2-lobed, orange-yellow *anther;* its lobes rather unequal. *Pollen* yellow-brown, waxy. *Stigma* much smaller than the lobe above described, peltate, rounded, glabrous, pale yellow.

This, the finest, without exception, of the known species belonging to that most singular and beautiful genus, *Cypripedium*, is a native of the same country as the *C. venustum*, namely Nepaul, and has many points in common with that species, among which the distichous mode of growth, and succulent nature of its leaves, are not the least remarkable.

The truly excellent representation of this plant in the splendid *Collectanea Botanica* of Mr Lindley, represents the leaves of *C. insigne* as much shorter than were those of my specimen, and differing also by being decidedly marked with nerves.

The individual from which Mr Lindley's figure and description were taken, was, as well as my own, communicated by Mr Shepherd, from the Liverpool Botanic Garden, whither it was introduced from that of Calcutta, in the year 1821.

It flowers in the month of November, and the blossoms continue for a great length of time in perfection.

Fig. 1. Under side of the Column of Fructification. Fig. 2. Upper view of the same. Fig. 3. Stamen, with its 2-celled Anther.—*All more or less magnified.*

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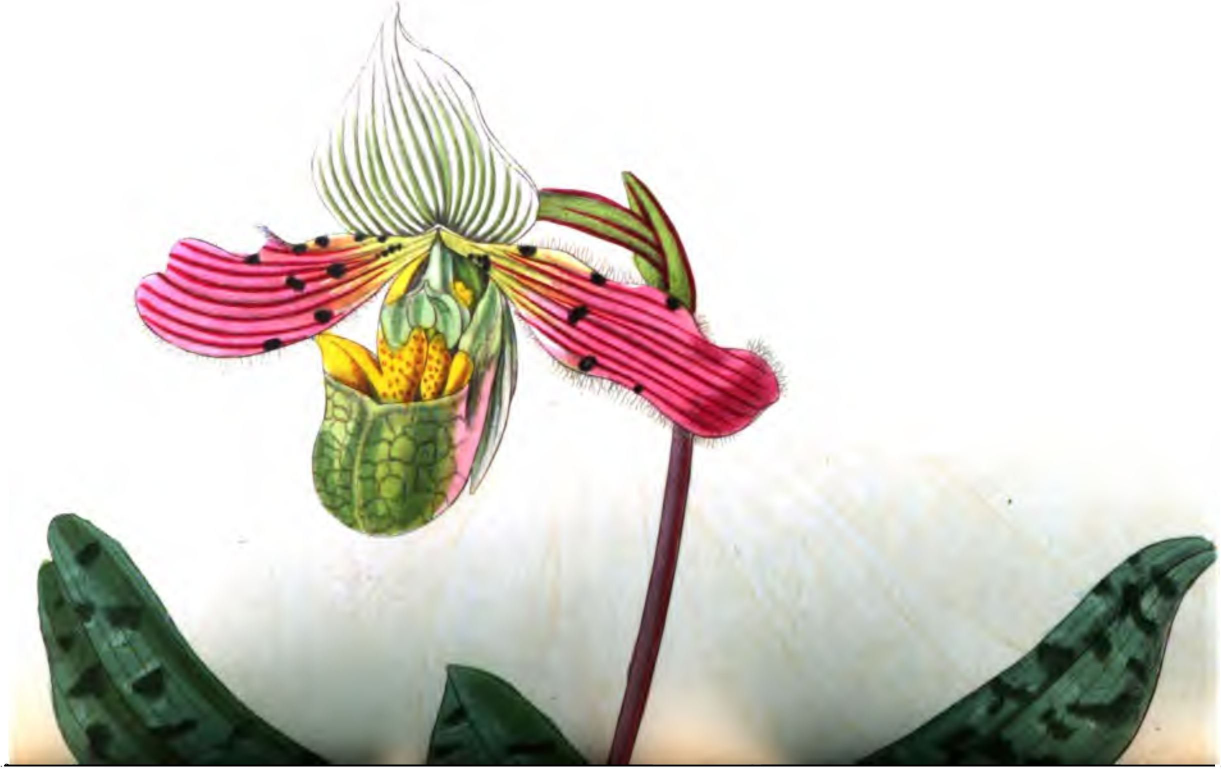
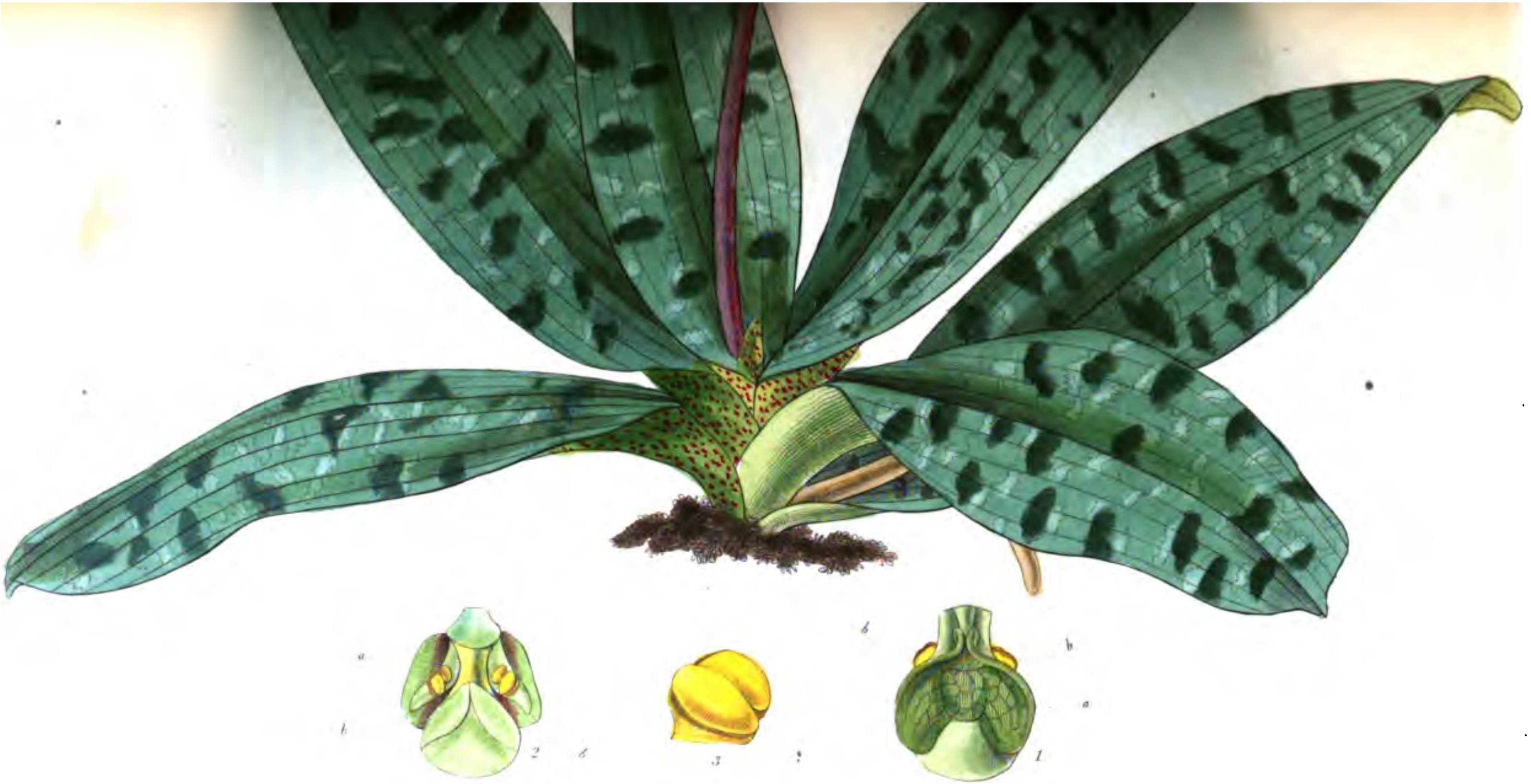




Cypripedium venustum

J. Swan Sculp.

CYPRIPEDIUM VENUSTUM.

Spotted Lady's-slipper.

GYNANDRIA DIANDRIA.—NAT. ORD. *ORCHIDEÆ*.

GEN. CHAR.—*Labellum* ventricosum, inflatum (nunc saccatum). *Columna* postice terminata lobo petaloideo (stamine sterili) antheras distinguente. *Petala* duo antica, sæpe connata.—*Br. in Hort. Kew.*

Cypripedium *venustum*; acaule, foliis lanceolatis equitantibus maculatis, petalis lateralibus ciliatis, labello venoso, ore inflexo.

C. venustum, WALLICH, *MSS.*—*Bot. Mag.* t. 2129.

Root composed of several large, reddish, downy, fleshy fibres. *Stem* none. *Leaves* spreading in a distichous manner, sheathing, and equitant at the base, the rest oblongo-lanceolate, dull blueish-green, spotted and clouded with a deeper tint, the margins slightly recurved, cartilaginous at the edge, and minutely toothed at the extremity; beneath, the leaves are of a fine purple, keeled in the centre, spotted with purple upon a green ground at the base.

Scape scarcely exceeding the leaves in length, rounded, simple, pubescent, curved at the extremity. *Bractea* or spatha ovate, keeled, pubescent, green, purple at the back.

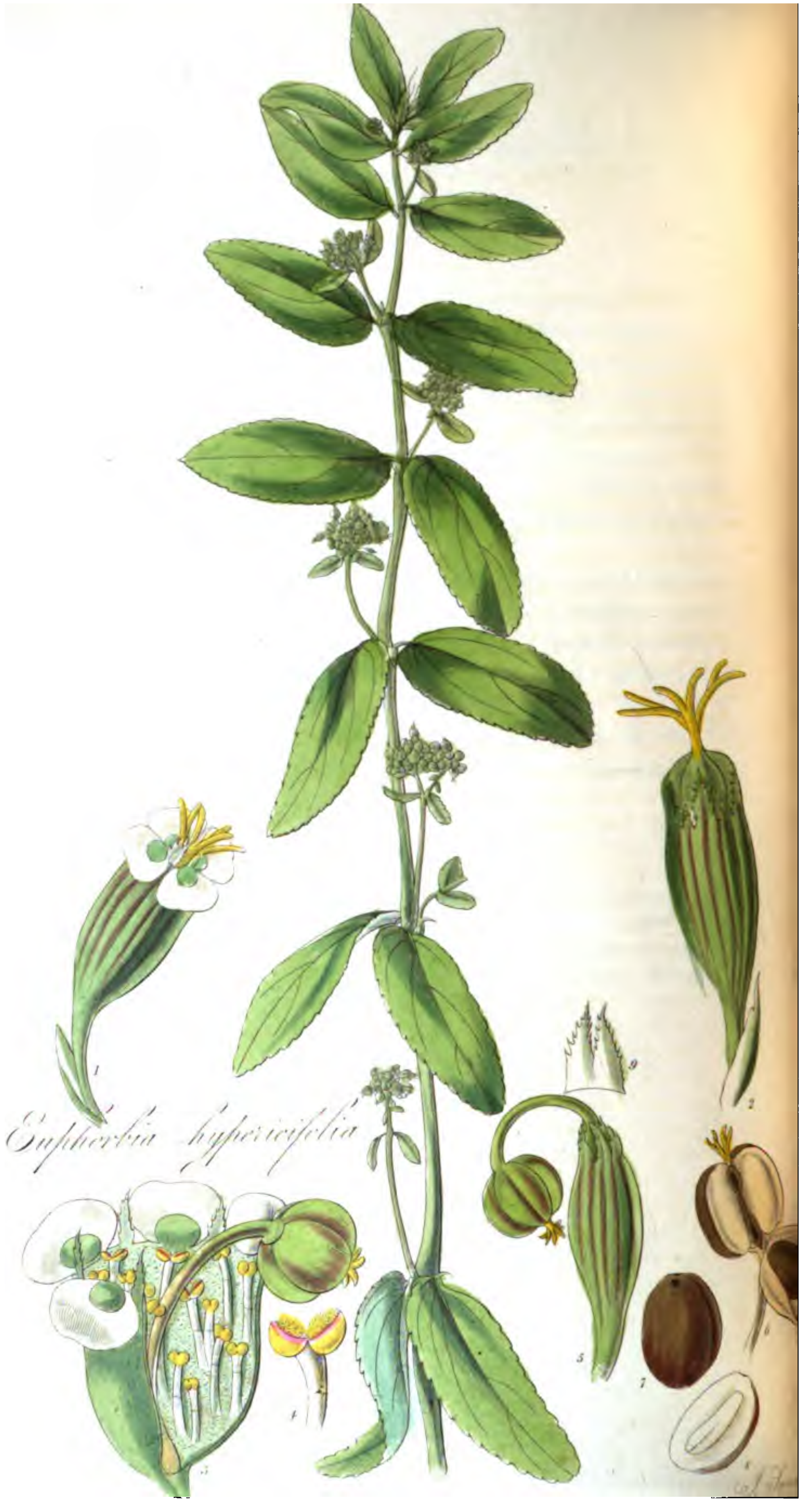
Flower large, handsome, solitary, drooping. The two outer segments of the perianth slightly pubescent, white, with beautiful green parallel lines, the upper one broadly ovate, acute, slightly concave, horizontal, afterwards nearly erect, the lower one composed of 2 united, pendent, ovato-lanceolate, acute segments. The 2 inner and lateral segments spreading, patent, linear-oblong, waved, the margin somewhat recurved, marked with parallel lines, and a few large deep brown spots, the upper half of a fine purple, the lower green, where there are a few white hairs, the margin beautifully ciliated with purple hairs. *Lip* large, roundish, ovate, inflated, pendent, the upper margin curved inwards, deep yellow, tuberculated, the mouth open, the margin a little incurved, the corner projecting upward, the rest of the lip of a purple colour within, extremely dingy yellow-green, reticulated, the sides purplish.

Column of fructification short, terminated by a large, somewhat cuneate, fleshy, exposed lobe, green and reticulated, beneath there are 2 lateral, hornlike, green processes (filaments), upon each of which is an unequally 2-lobed orange-yellow *anther*. Each lobe is ovate, its upper surface filled with a waxy, deep yellow *pollen.* *Stigma* large, peltate, pale yellow-green, hid beneath the inflated sides of the lip. *Germen* inferior, oblong, trigonal, incurved, green, with purple lines.

This was, unquestionably, till the introduction of the *Cypripedium insigne,* the handsomest and also the most rare of this interesting genus of Orchideous plants, and not a little remarkable for the variety of its hues, both on the leaves and flowers. The former are beneath of a fine dark purple, spotted at the base, and variegated with different shades of green. The outer segments of the corolla are also very dissimilar in form and colour from the inner ones, and the lip is again very unlike in its markings any of these.

Our plant flowered in the stove of the Glasgow Royal Botanic Garden, in the month of November, and continued several days in great beauty. It is a native of Nepaul, according to Dr HAMILTON, where two other species have been found by the indefatigable collector employed by Dr WALLICH. To the latter we owe our living specimens, which thrive well in common earth, mingled with a small portion of peat, and plunged in the tan or sand.

Fig. 1. Front view of the Column of Fructification; *a.* The petaloid lobe; *b, b.* The Anthers; *c.* The back of the Stigma. Fig. 2. Under side of the Column; *a.* Back view of the petaloid lobe; *b, b.* Lateral processes, bearing the Anthers; *c.* Front view of the Stigma. Fig. 3. Anther.—*All more or less magnified.*



Euphorbia hypericifolia

EUPHORBIA HYPERICIFOLIA.

Hypericum-leaved Spurge.

MONOECIA MONANDRIA, (DODECANDRIA TRIGYNIA, *Linn.*)
NAT. ORD. *EUPHORBIACEÆ.*

GEN. CHAR.—*Flores masculi* plurimi; *fœmineus* unicus, plerumque in eodem involucro monophyllo calyciformi octo vel decemdentato. *Flores masculi* pedicellati, nudi: *Flos fœmineus* pedicellatus, nudus, (rarissime perianthio instructus). *Styli* tres, bifidi. *Capsula* tricocca, coccis monospermis.

Euphorbia *hypericifolia*; erecta, glaberrima, foliis oppositis brevissime petiolatis oblongis acutiusculis serrulatis basi obliquis semicordatis, corymbis axillaribus terminalibusque.

E. hypericifolia, LINN. *Amœn. Acad.* v. iii. p. 113. (excl. the syn. of BURM. *Zeyl.*)—WILLD. *Sp. Pl.* v. ii. p. 895.—AIT. *Hort. Kew.* ed. 2. v. iii. p. 161. —HUMB. et KUNTH, *Nov. Gen. et Sp.* v. ii. p. 45.

Tithymalus americanus, flosculis albis. COMM. *Prœl.* p. 60. t. 60. (fid. WILLD).

Whole plant perfectly glabrous. *Root* fibrous, annual (perennial? *Humb.*). *Stem* a foot or a foot and a half high, erect, rounded, dichotomous, slender, reddish-green, somewhat swoln at the joints. *Leaves* in rather distant pairs, opposite, patent or deflexed, oblong rather obtuse, serrated, the base unequal and semicordate, indistinctly marked with veins, of a delicate texture, and beautiful green colour. There are 2 ovate bifid *stipules* between each pair of leaves, sometimes bipartite. *Corymbs* axillary and terminal, pedunculated, crowded, furnished with a few small, opposite leaves. *Partial stalks* bracteated; bracteas small, lanceolate, sometimes a little toothed.

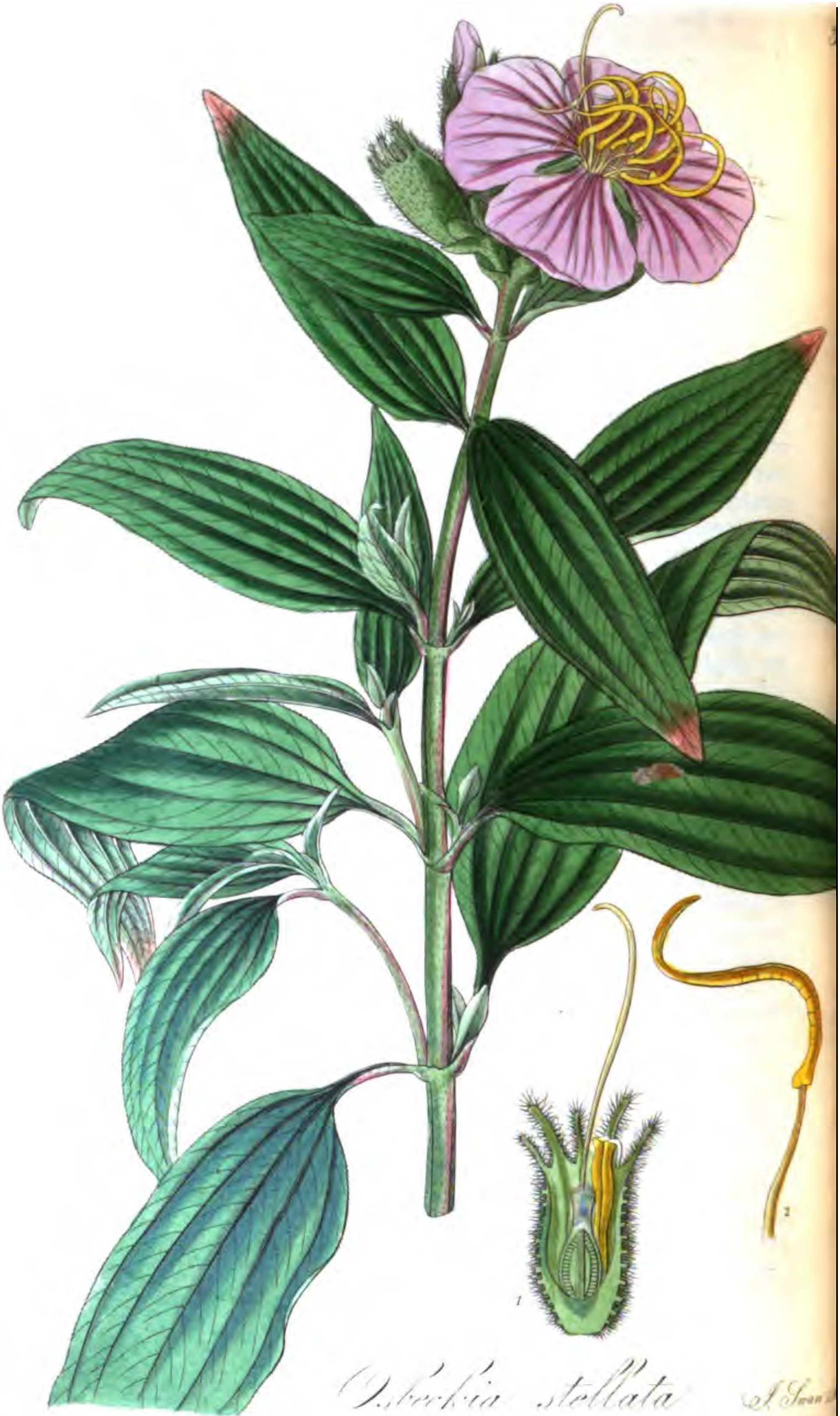
Involucres oblongo-turbinate, glabrous, obscurely striated, some terminating at the mouth in 4 rather large, petal-like, roundish, pure white, patent teeth or processes, with a green gland at the base, and as many erect, or incurved, ciliated, lanceolate and membranaceous ones, alternating with them, (Fig. 3). Others have only the 4 lanceolate, or ovato-lanceolate, erect, membranaceous scales, with as many smaller and similar ones between them. These small ones are, however, sometimes terminated with a green gland, and have the rudiment of a white petal-like process beneath it (Fig. 2).

The *Involucre* is within pubescent, with very small scales, or chaff-like processes, and amongst them, and upon the side, are several, 10, 12, or more, pedicellated, monandrous, naked male *flowers*. *Filament* white, short, jointed on the pedicel. *Anther* didymous, yellow, when burst tinged with purple. *Pollen* yellow. In the centre, at the base of the involucre, is situated the *female flower*, a single 3-lobed *germen*, with 3 bifid *styles*, destitute of perianth, and jointed upon a thickish green *pedicel*, which increases in length, as the capsule advances in size, becomes curved, and exceeds considerably the length of the involucre. Each lobe of the germen forms, when mature, a triangular, slightly punctated *Coccus* or *Capsule*, attached longitudinally to a central linear *receptacle*, from which it separates, bursting longitudinally with an elastic force, and flinging out a single ovate, but somewhat triangular, brown *Seed*. Within the seed is a fleshy *albumen*, and in the centre a cylindrical *Embryo*, with its radicle directed towards the hilum.

An inhabitant of the West Indies;—cultivated in Britain so early as 1727, by Mr P. Miller, and remarkable for the four pure white petal-like appendages to the involucre, which give to that part no very distant resemblance to the minute flower of some cruciferous plant. It blossoms in September in our stoves, and dies away annually, after yielding an abundance of ripe seeds. We cultivated, in 1821, also from West Indian seeds, an individual very similar to this, but in which all the involucres were destitute of white processes, and its stem and leaves, especially beneath, were covered with short, rigid, appressed hairs.

If *Euphorbia hypericifolia* be not deemed worthy of a place in this work, from the beauty of its flowers, it may deserve it from the representation and explanation which I have given of the flower and inflorescence, which no botanist had rightly understood, till Mr Brown explained them in his valuable Appendix to Captain Flinders' work. No question can now be entertained as to the propriety of removing this genus from the Class *Dodecandria* of the Linnean system, to *Monœcia*. The joint in the supposed stamen, is, in fact, the line of separation where the pedicel terminates, and the naked stamen, here forming the entire male flower, begins. A similar joint is visible at the insertion of the female flower, and in this situation Mr Brown has, in some instances, discovered the rudiments of a 3-lobed perianth.

Fig. 1. Involucre, with petal-like processes. Fig. 2. Involucre, destitute of the petal-like processes. Fig. 3. Involucre cut open, to shew the insertion of the numerous naked monandrous male flowers, and the single naked female flower, all pedicellated. Fig. 4. Anther burst. Fig. 5. Involucre, with a ripe fruit. Fig. 6. Fruit, with one of its capsules, or cocci, separating from the columella, and bursting to discharge the seed. Fig. 7. Seed. Fig. 8. Seed cut open longitudinally, to shew the Albumen and Embryo. Fig. 9. Stipule.—*All very much magnified.*



Osbeckia stellata

J. Swan

37

OSBECKIA STELLATA.

Woolly-fruited Osbeckia.

OCTANDRIA MONOGYNIA.—NAT. ORD. *MELASTOMACEÆ*, *Br.*

Osbeckia *stellata;* foliis oblongo-lanceolatis, calycis tubo pilis numerosissimis fasciculatis densissime intertextis obsito.

Osbeckia stellata, HAMILTON, *in Herb. Lamb.* (according to Mr DON).—DON, *in Bot. Reg.* t. 674.

Osbeckia crinita, SMITH, *MSS.*

Stem, a foot or a foot and a half high, erect, branched, quadrangular, reddish-green, covered with scattered appressed hairs. *Leaves* opposite, oblongo-lanceolate, rigid, entire, clothed on all sides with numerous, short, appressed hairs, ciliated at the margins, five-nerved, with the nerves intersected with parallel oblique veins, deep green above, paler beneath, where the nerves are prominent.

Flowers large, two inches across, purple-rose colour, very handsome, in terminal (and axillary?) corymbs. *Peduncles* short, with one or two ovate, ciliated, deciduous bracteas at their base and at their extremity. *Calyx* covered, all over, with thickly crowded interwoven hairs, or soft bristles, which, when carefully examined, are found to proceed, in tufts, from small excrescences or tubercles on the surface of the calyx, their colour is white; *tube* ovate, large; *limb* of 4 linear equal segments, and 4 smaller ones or scales, alternating with them. *Corolla* of 4 roundish, slightly unguiculated, spreading petals, nerved, ciliated at the margin. *Stamens* 8, subulate, united at the base of the petals. *Filaments* yellow. *Anther* deep yellow, very long, curved nearly in the shape of the letter S, furrowed on the top, opening by a single pore at the extremity. *Pistil: germen* sunk within the tube of the calyx, with its lower part only incorporated with it, ovate, attenuated, but truncate at the top, hairy. *Style* about as long as the stamens, pale yellow, filiform, curved at the summit; *Stigma* obtuse.

This species of *Osbeckia* I had occasion to mention as a native of Nepaul, in the last Part of my Exotic Flora, little thinking that I should so soon have the satisfaction of publishing it as an inhabitant of our gardens. The Messrs SHEP-

HERD have raised this plant from seeds sent by Dr WALLICH from Katmandu, and it flowered in their excellent establishment in October 1822. From a specimen communicated from Liverpool, the accompanying design was made. It is a much more beautiful species than *O. nepalensis*, having broader leaves, larger flowers, and these of a considerably brighter colour. As a species, it is distinguished by the thick, woolly-like substance which invests the calyx, and which suggested to Sir JAMES E. SMITH its specific name of *crinita*.

Since my figure was engraved, and the name of *crinita* written under it, and since the MS. was prepared for the press, this species has been well figured and described in the Botanical Register. To avoid confusion, I have altered the specific name upon the plate, and in the description, so as to correspond with that of Mr DON.

I have specimens in my herbarium, both from Sir JAMES E. SMITH and Dr WALLICH.

Fig. 1. Calyx cut open, to shew the Pistil, Style, and the manner in which the Stamens are folded in the Calyx, before the expansion of the Corolla. Fig. 2. Stamens,—*both magnified.*

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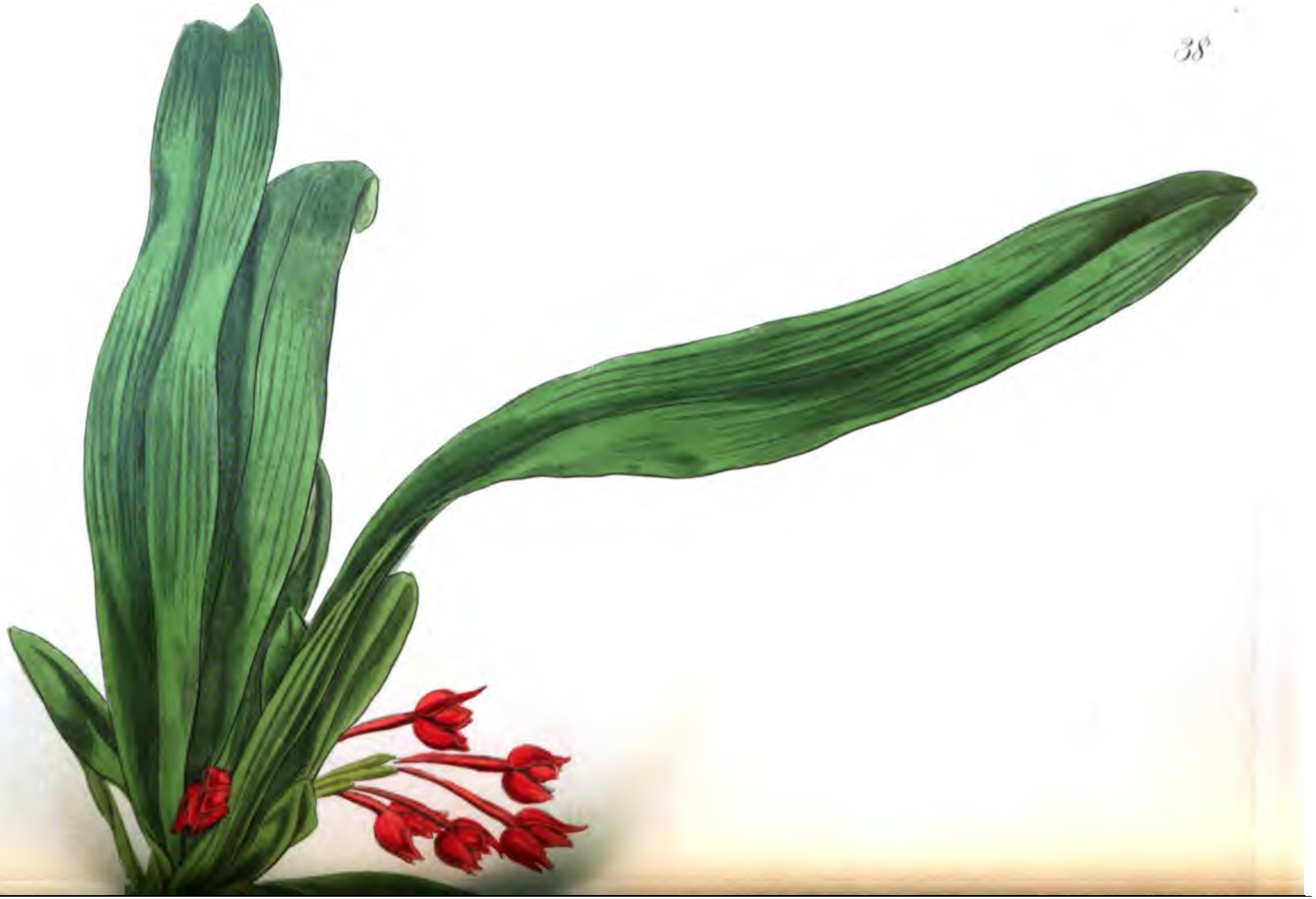

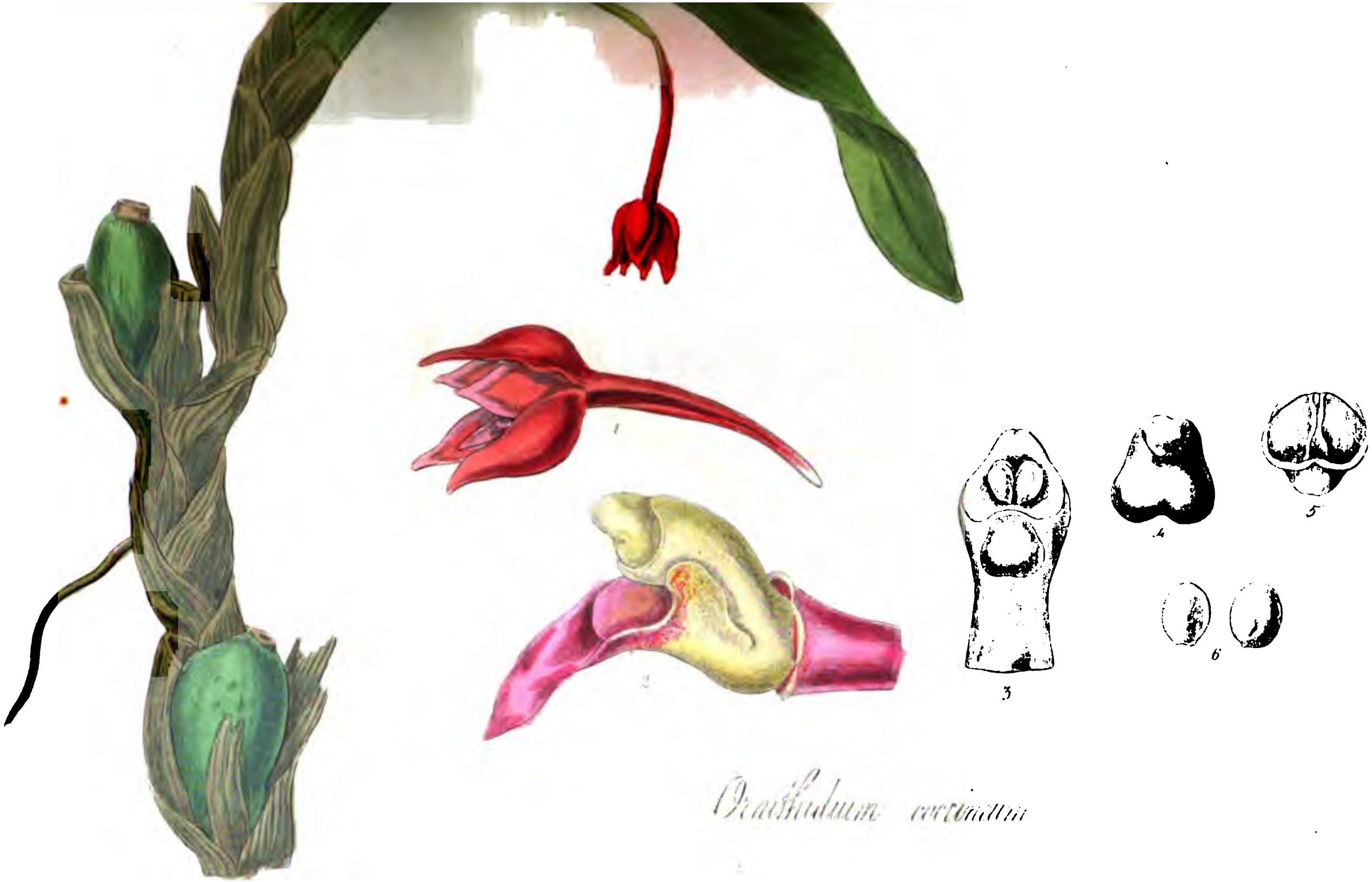

Ornithidium coccineum

ORNITHIDIUM COCCINEUM.

Scarlet Ornithidium.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

GEN. CHAR.—*Labellum* sessile cucullatum cum basi columnæ connatum. *Petala* conniventia. *Massæ pollinis* 4, obliquæ, postice sulcatæ.—*Br.*

Ornithidium coccineum, SALISB. *in Hort. Soc. Trans.* v. i. p. 293.—BR. *in Hort. Kew.* ed. 2. v. 5. p. 210.

Cymbidium coccineum, WILLD. *Sp. Pl.* v. iv. p. 94.—*Bot. Mag.* t. 1437.

Stem frequently a foot or more in height, here and there beset with green oblong bulb-like processes, and with the brown sheathing bases of old leaves; the extremity alone producing a tuft of long, ensiform, flexuose, somewhat striated green *leaves,* whose base is swoln, and slightly gibbous.

From the axils of the *leaves* arise several beautiful scarlet *flowers,* borne upon long, solitary, drooping footstalks, which are jointed, and furnished with a long sheath at each joint, green, except beneath the flower, where the sheaths are red and swelled.

Divisions of the perianth connivent, the 3 *outer* ones ovato-acuminate, very concave, the 2 *inner* ones shorter and acute, the 6th or *lip* smaller than the rest, ovato-lanceolate, waved, acute, with a swelling on the upper side near the base; the sides, below the middle, projecting into two wings, and embracing the column to which the base itself is united. *Column* yellow, shorter than the lip, slightly curved, nearly horizontal, truncate at the extremity, furnished with a moveable *lid* (the *Anther*), like an operculum, and attached by a single point behind; this *Anther* is conical, obtuse and gibbous. If it be removed before the expansion of the flower, it will be found to contain 2 cells, each with 2 *masses of pollen;* if it be removed after expansion, the four masses of pollen will be seen fixed by their lower extremity to the centre of the truncated extremity of the column. Each *pollen-mass* is granular, at length waxy, between ovate and roundish, nearly white, having on one side a furrow or depression, which MR BROWN has made to constitute one of the generic characters. *Stigma* small, concave, viscid. *Germen* scarlet, very narrow, and much attenuated into the footstalk.

This is a plant of considerable delicacy and beauty. The green of its foliage is bright, the flowers of a brilliant scarlet colour, waxy texture, and a gracefully pendent form. It has the advantage, too, of being easily cultivated, and blossoming freely, if grown, like most other orchideous parasites, in a mixture of mould and bark, and kept in a shady part of the stove.

The *Scarlet Ornithidium* is a native of the West Indies, and in our Botanic Gardens commonly flowers in the Autumn and Winter.

Fig. 1. Flower, with the lengthened germen. Fig. 2. Column and Lip. Fig. 3. Column, from which the anther is removed, shewing the Stigma, and the Pollen as left by the anther. Fig. 4. Outer view of the Anther. Fig. 5. Inner view of the same, with the cells empty. Fig. 6. Two of the four Pollen-masses.—*All more or less magnified.*

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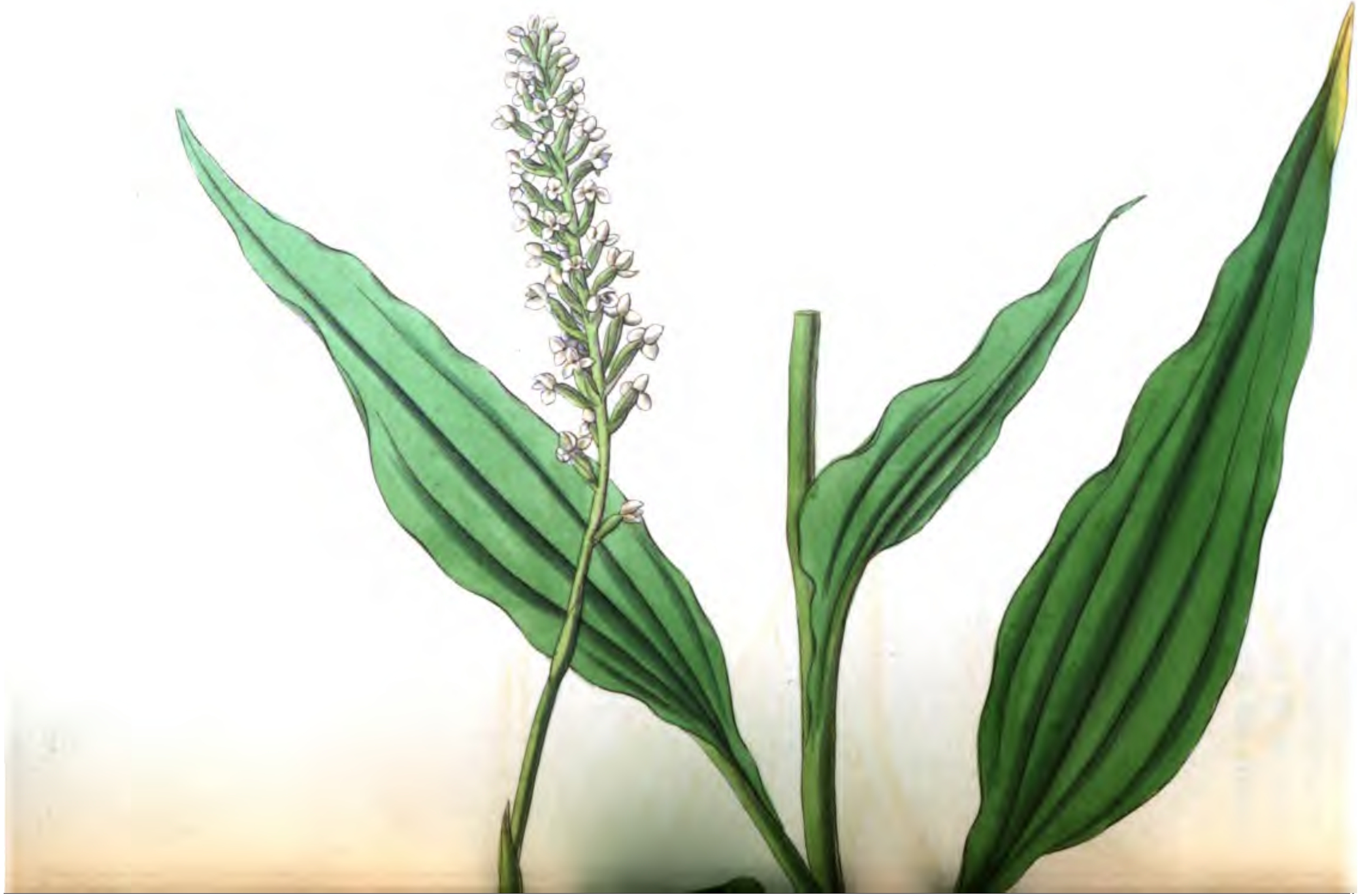
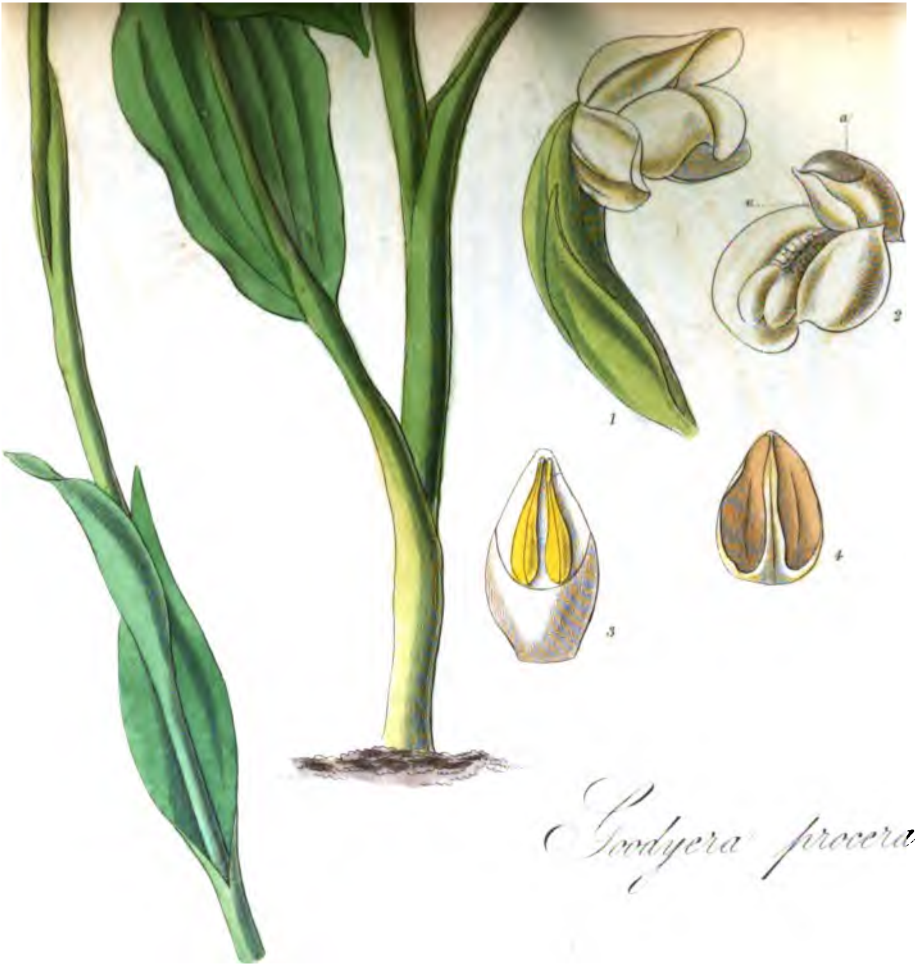




Goodyera procera

[illegible] Sculpt

GOODYERA PROCERA.

Tall Goodyera.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

GEN. CHAR.—*Corolla* ringens; petalis exterioribus anticis, labello inferne gibboso superne indiviso, suppositis. *Columna* libera. *Pollen* angulatum.—*Br.*

Goodyera *procera;* caule folioso, foliis ovato-lanceolatis petiolatis, labello rotundato intus bi-tuberculoso glanduloso, petalis late ovatis.

Neottia procera, WALLICH.—*Bot. Reg.* t. 639.

Stem 1½ foot high (to 3 feet, according to *Bot. Reg.*), slender, flexuose, leafy. *Leaves* erecto-patent, ovato-lanceolate, acuminate, slightly waved at the margin, pale green, obsoletely 3 or 5 nerved, the central one or midrib keeled below, tapering downward into footstalks, which embrace the stem with their bases; upper ones gradually smaller, sessile, and running into the bracteas.

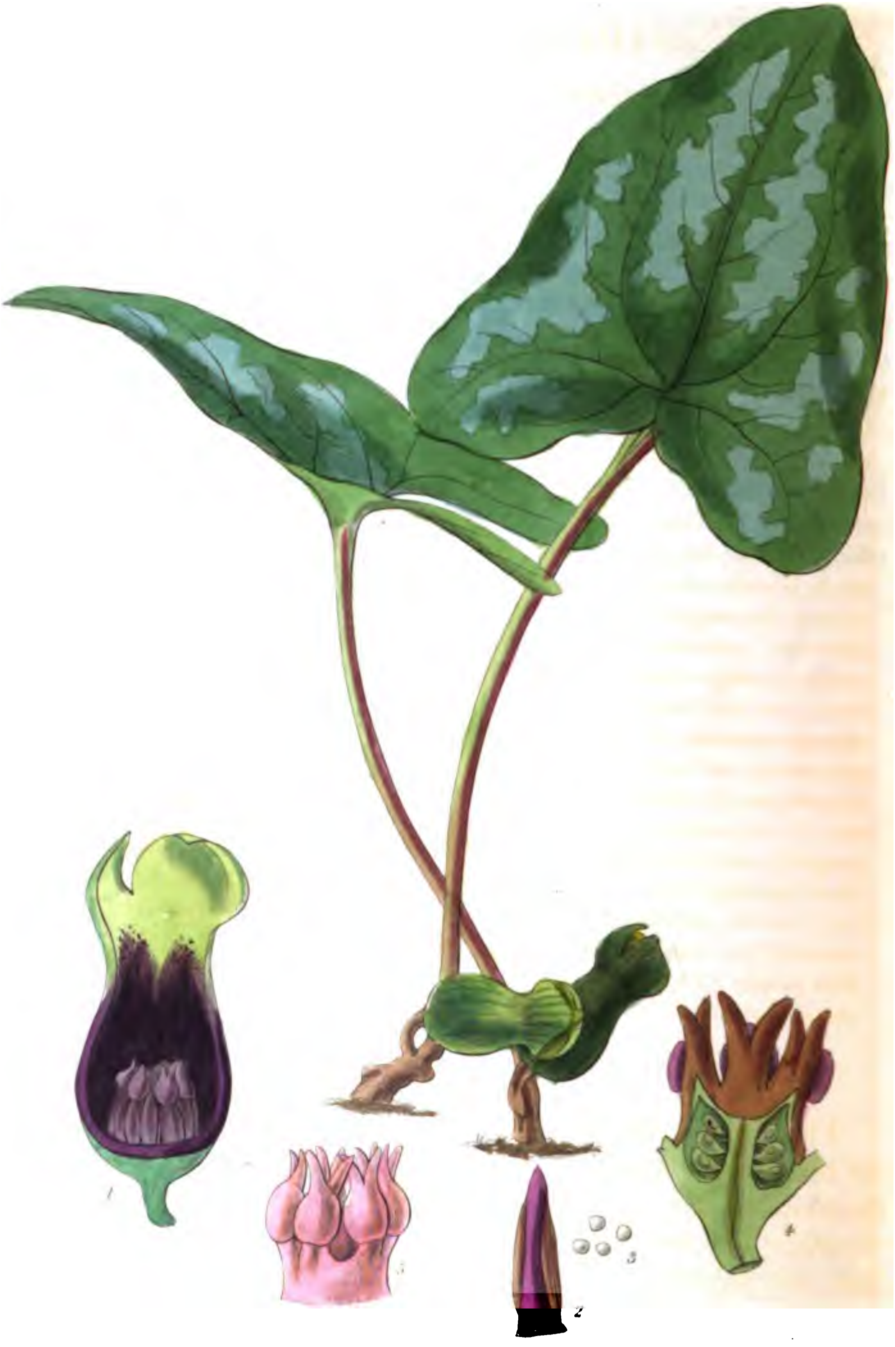
Spike from 4 to 6 inches long, of numerous sessile flowers, each subtended by a lanceolate bractea, shorter than the germen.

Flowers white, small. *Leaflets of the perianth* broadly ovate, concave, the 3 uppermost ones connivent and united, the 2 lowermost free, patent. *Lip* very small, rounded, white, very gibbous at the base on the underside, the apex spreading and recurved. The base within has numerous, rather large pellucid glands, and between them and the extremity are 2 ovate white tubercles. *Column* short, white, rounded at the back. *Anther* sunk into a hollow at the back of the *stigma*, ovate, deciduous, 2-celled, leaving upon the back of the stigma, when it falls, 2 club-shaped, bipartible, bright yellow *pollen-masses*, composed of granules cohering in fours, and these *pollen-masses* fixed by their base to a gland at the point of the stigma, which, as in *Goodyera repens*, probably falls away with the pollen-masses. *Germen* oblong, slightly twisted. *Stigma* square, viscid, occupying almost the whole of the front of the column.

This interesting species of *Goodyera* resembles very much, in the form of its flowers, the *G. repens* of the *Flora Londinensis* and *Hortus Kewensis*, and also the *G. pubescens*, so admirably delineated by Mr LINDLEY in his *Collectanea Botanica*. In neither of these plants, however, does there exist any remarkable peculiarity within the *lip* of their flowers, whereas in the present species, there are large, pellucid, elongated glands at the base, and 2 white tubercles near the extremity of that part. The leaves are very singular, also, in the *G. procera*, springing from the stem, and lengthened out into a decided petiole at their base, which gives an aspect to the whole individual very unusual in the *Orchis* tribe.

Sent by Dr WALLICH to the Botanic Garden at Liverpool, and thence to me, in a flowering state, in the month of March 1822. The blossoms are quite destitute of scent.

Fig. 1. Flower, with its bractea. Fig. 2. Lip and Column; *a*, The Anther; *b*, The Stigma. Fig. 3. Back view of the Column, after the removal of the Anther-case, shewing the 2 Pollen-masses, fallen upon the back of the Stigma. Fig, 4. Inside view of the Anther-case.



Asarum arifolium

J. Swan Sculpt

ASARUM ARIFOLIUM.

Arum-leaved Asarabacca.

DODECANDRIA MONOGYNIA.—NAT. ORD. *ARISTOLOCHIÆ.*

GEN. CHAR.—*Calyx* 3- seu 4-fidus, germini insidens. *Corolla* nulla. *Capsula* coriacea, coronata.

Asarum *arifolium;* foliis subhastato-cordatis, calyce tubuloso, infra limbum brevissime trifidum coarctatum.—*Mich.*

A. arifolium, MICHAUX, *Fl. Bor. Am.* v. i. p. 279.—PURSH, *Fl. of N. Am.* v. ii. p. 596.

The *root* I have not seen. *Stem* extremely short, and scarcely rising above the surface of the ground. One single leaf terminates this short stem, which is cordato-hastate, subcoriaceous, smooth and shining, slightly undulated, the margin entire, dark green, with large spots or blotches of a paler hue; petiolated, the petiole cylindrical. From the base of the petiole, through a small longitudinal cleft, appears the solitary *flower,* scarcely an inch long, drooping, on a short curved stalk. *Perianth* single, oblongo-urceolate, of a thick coriaceous substance, of a dull green colour, and veined; the limb is trifid, with the lobes recurved. The inside of the tubular part is velvety, and of a deep purple colour.

Stamens 12 in number, surrounding and concealing the style; *filaments* purplish, subulate, thick, having on each side, attached to nearly their whole length, a linear oblong cell of an anther. *Pollen* subquadrangular. *Germen* scarcely at all inferior. *Style* short, thick, columnar, terminated by a stigma with 6, nearly erect, bifid rays, brownish, spotted with purple. At the back of each of these rays is an ovate, purple, fleshy gland or swelling.

That this is the *Asarum arifolium* of MICHAUX, there can be, I should think, no doubt, since it so fully accords with the character given of that plant in the *Flora Boreali-Americana* of that author. Living plants were sent to our garden from the Savannah by MR WILSON; and they flowered with us in the summer.

From the three species hitherto known of this genus, the present differs remarkably in the shape of its flower, which is singularly contracted below the limb. The leaves, too, are curiously spotted, like those of *Cyclamen europæum*.

Fig. 1. Flower cut open longitudinally, to shew the Organs of Fructification. Fig. 2. Stamens. Fig. 3. Pollen. Fig. 4. Vertical section of the Germen. Fig. 5. Entire germen.—*All more or less magnified.*

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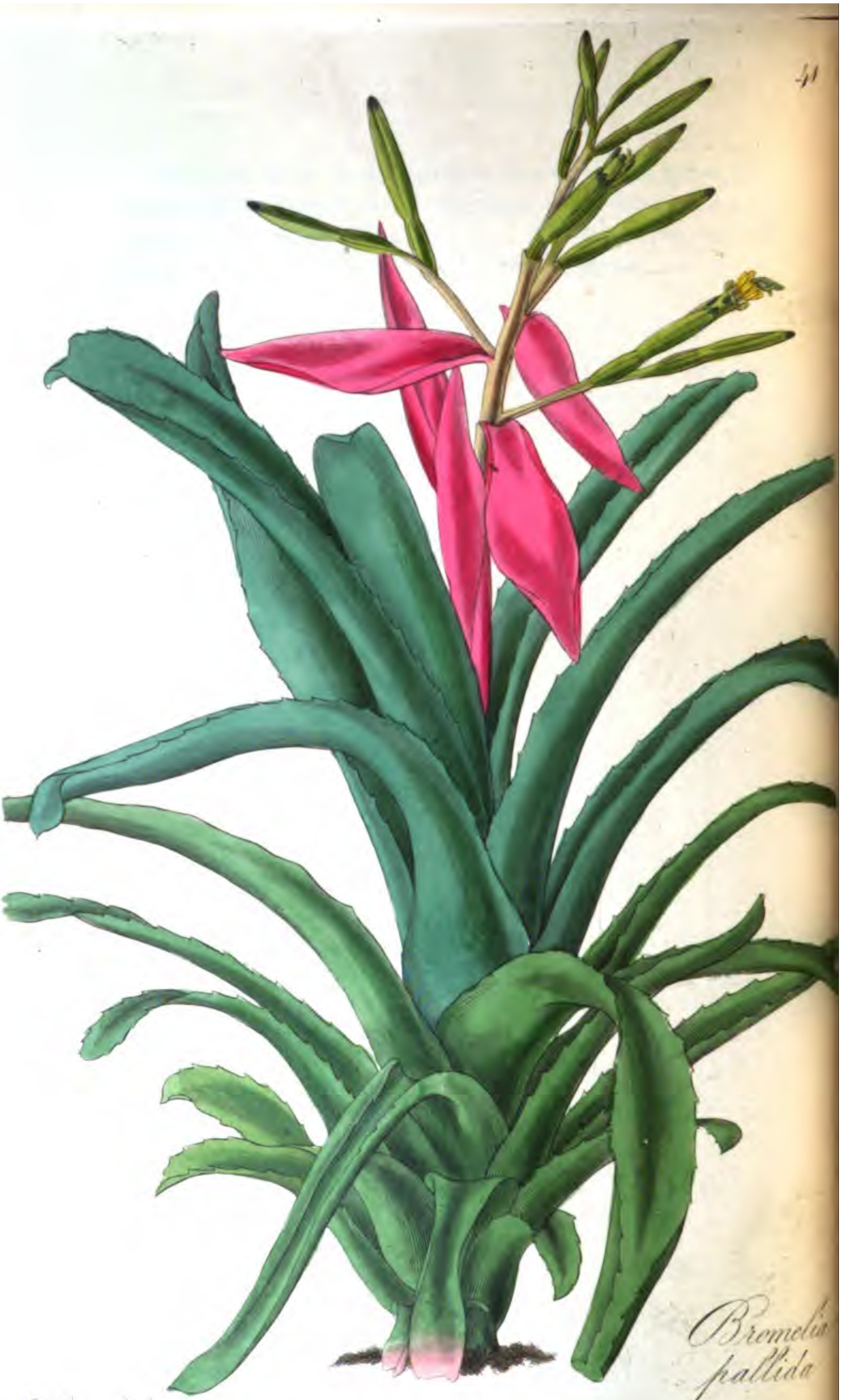
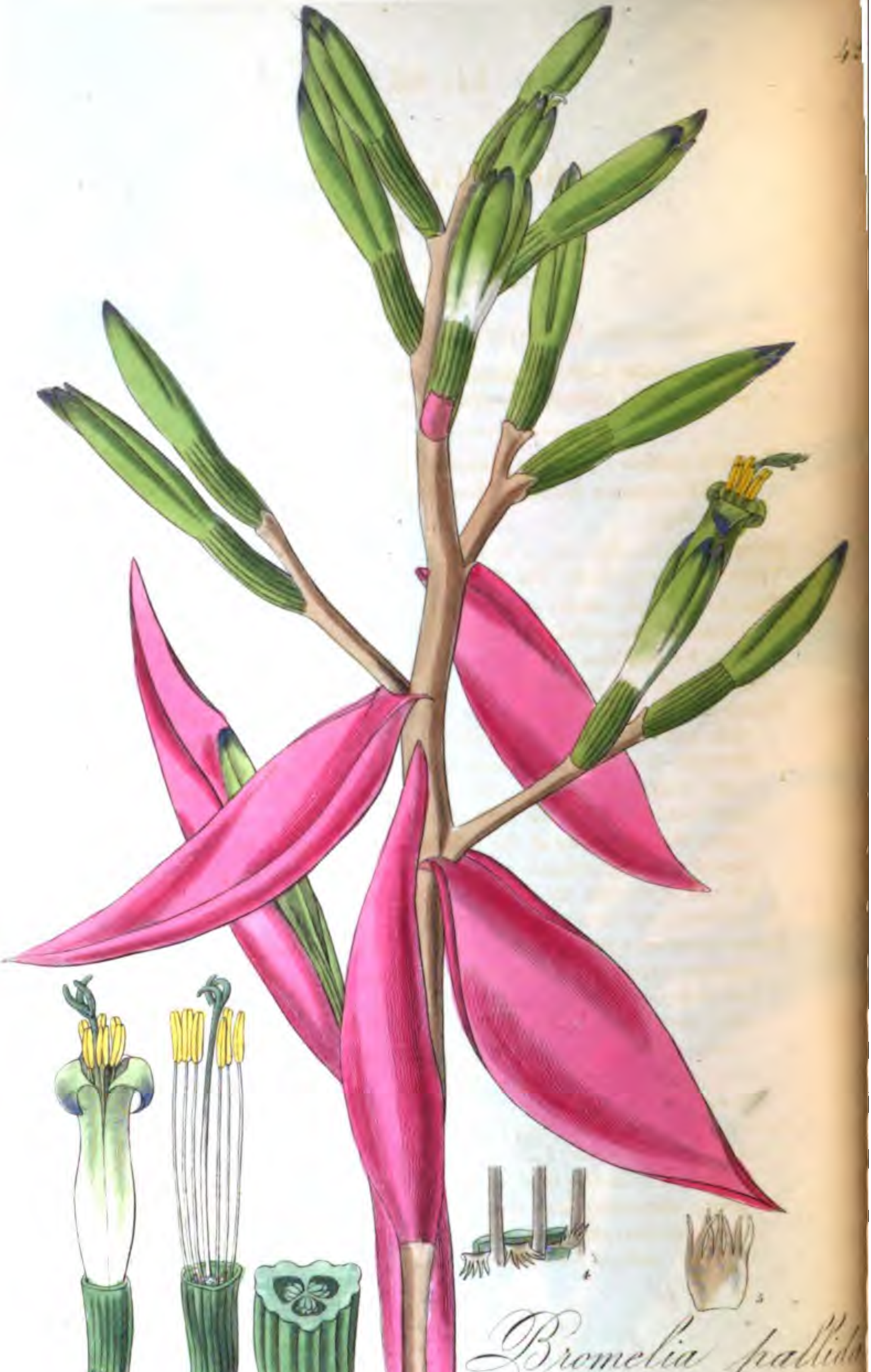


Bromelia
pallida

C Swan Sculpt



Bromelia pallid

J. Swan

41, 42.

BROMELIA PALLIDA.

Pale-flowered Bromelia.

HEXANDRIA MONOGYNIA.—NAT. ORD. *BROMELIACEÆ, Juss.*

GEN. CHAR.—*Cal.* 3-fidus, superus. *Petala* 3. *Squama nectarifera* ad basin petali. *Bacca* trilocularis.—*Hort. Kew.*

Bromelia *pallida;* panicula laxissima patentissima, pedunculis bifloris, spathis supremis fertilibus, florem æquantibus, divaricatis.—*Kerr, in Bot. Reg.*

Bromelia pallida, *Bot. Reg.* t. 344.

Tillandsia amæna, LODD. *Bot. Cab.* t. 76.

Stem short, simple, wholly clothed with numerous, densely crowded, linear-lanceolate, channelled, patenti-recurved, dull blueish-green, thin, coriaceous *leaves,* whose margins are sharply serrated, their bases broad and imbricated; the largest of them 8 or 10 inches in length.

Panicle terminal, taller than the leaves, cylindrical, branched; branches distant, patent, alternate, somewhat compressed, almost constantly two-flowered, shewing at their bases (except a few of the uppermost branches), large, deep rose-coloured, thin, ovate, concave *bracteas* or *spathas.* Similar *bracteas* sheath the base of the flowering-stalk; these altogether, before the appearance of the flowers, are imbricated into a rich rose-coloured or almost crimson spike, afterwards they become patent, deflexed, and by the time the flower is fully expanded, they lose much of their brilliancy, and soon after fall away.

Flowers between 2 and 3 inches in length, patent. *Germen* inferior, oblong, obtusely trigonous, marked with prominent lines, green, 3-celled, each cell with many ovules at the inner angles. *Calyx* shorter than the corolla, forming a tube around it, of 3 linear oblong segments, pale green. *Corolla* also of 3 linear-lanceolate segments, conniving, so as to form a tube, slightly ventricose and hyaline below, the rest pale yellow-green, except the apices, which are recurved, and tipped with blue.

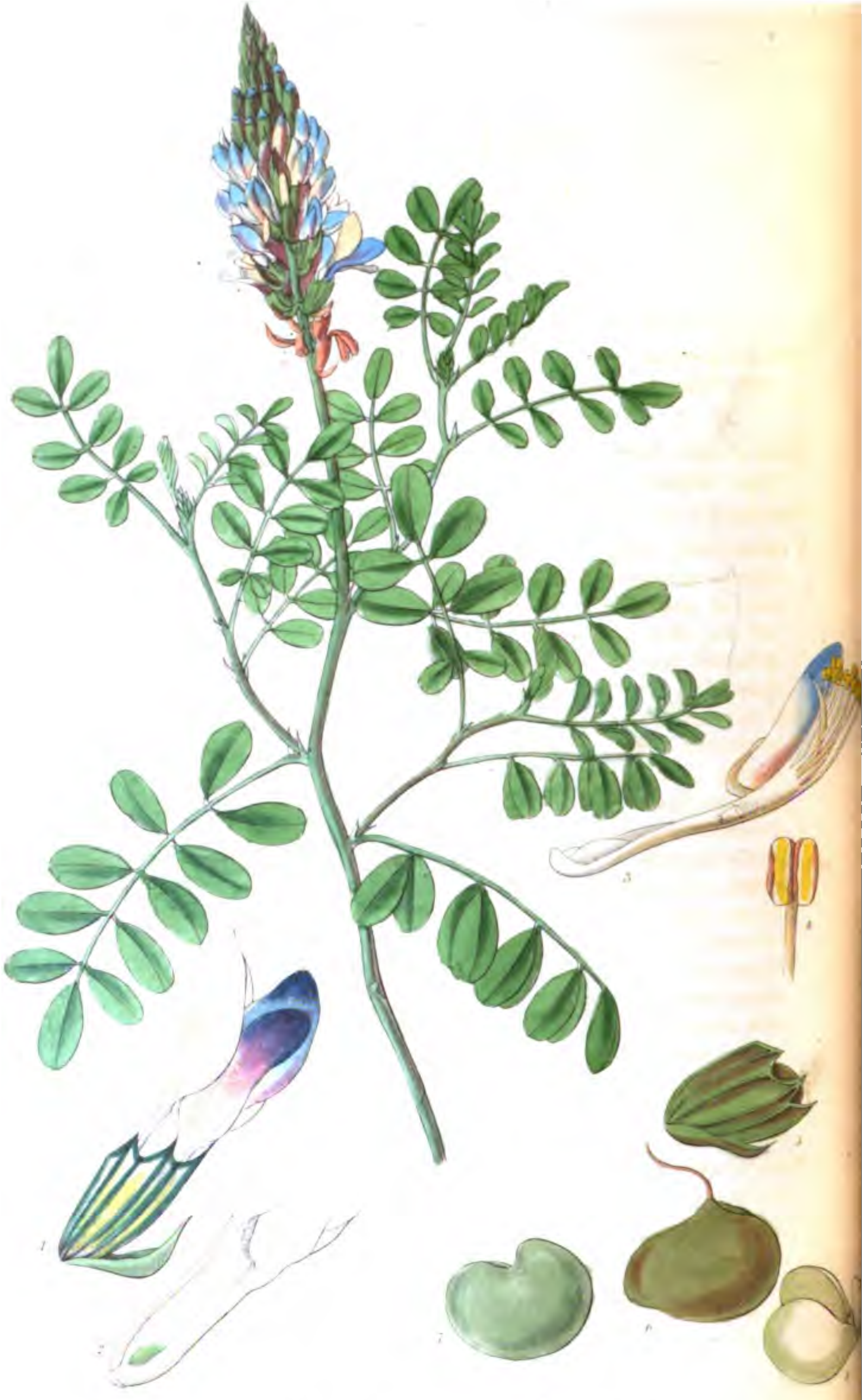
Stamens 6, of equal length, and about as long as the corolla. *Filaments* slender, thread-shaped, white, glabrous, inserted into the very base of the corolla, just where it forms a tube with the marginal summit of the germen, and having, alternating with them at their base, a small, subquadrate, white membranaceous scale, cut into numerous awl-shaped segments at the extremity. *Anthers* linear-oblong, yellow. *Style* rather longer than the stamens, and a little exceeding the corolla, white below, green above, glabrous. *Stigmas* 3, variously curved, and somewhat twisted.

This interesting plant is seen in its greatest beauty, when, emerging from the crown of its dark lurid leaves, the panicle appears covered by the large, closely-imbricated, and brilliantly-coloured bracteas. For, no sooner has this panicle attained its full size, and the flowers have protruded themselves, than the fine colour disappears, the bracteas soon fall away, and the flowers themselves exhibit little or no vividness of hue to recommend them, except it be the deep blue tint which tips the extremities of the segments of its calyx and corolla.

Mr LODDIGES appears to have first figured and described this plant in his *Botanical Cabinet*, under the name of *Tillandsia amœna*. Mr KER afterwards figured it in the 344th plate of the *Botanical Register*, with the appellation here adopted, from a weak plant, however, in which one of the flowers of each peduncle was wanting, from abortion. There is even in our specimen, an appearance, indicated by a short process at the summit of many of the pedicels, of a tendency to ramify still more.

Bromelia pallida flowers readily in the tan-pit, early in the winter. Plants of it were sent to my collection in Suffolk, five years ago, by my friends Messrs SHEPHERD of Liverpool; and the same liberal cultivators have likewise communicated individuals to our Glasgow Botanic Garden, from which the fine specimen in the accompanying drawing was taken. It is supposed to be a native of South America.

TAB. 41. Plant, reduced to about ⅓d of the natural size. TAB. 42. Panicle, *nat. size*. Fig. 1. Flower, deprived of the calyx. Fig. 2. The same, deprived of the calyx and corolla. Fig. 3. Germen, cut through transversely. Fig. 4. The bases of 3 Stamens, to shew the scales alternating with them. Fig. 5. Single Scale.—*All more or less magnified.*



Dalea bicolor

J. Sow

43

DALEA BICOLOR.

Two-coloured Dalea.

DIADELPHIA DECANDRIA.—NAT. ORD. *LEGUMINOSÆ.*

GEN. CHAR.—*Alæ* et *Carina* columnæ staminum adnatæ. *Stam.* 5–10, connatæ, absque filamento libero. *Legumen* monospermum.—*Vent.*

Dalea *bicolór;* decandra, spicis terminalibus elongatis, foliis subquinquejugis obovatis, caule fruticoso.

Dalea bicolor, WILLD. *Hort. Berol.* v. ii. t. 89.

A rather small, straggling, suffrutescent *plant,* with cylindrical branching slightly pubescent zig-zag *stems.* *Leaves* alternate, composed of 4 or 5 pairs of smallish obovate, obtuse, rather distant leaflets, and a terminal odd one; these are furnished with a central rib, are slightly petiolated, and sprinkled beneath with numerous distinct impressed dots, resembling those of the *Common Rue.* *Stipules* small, subulate.

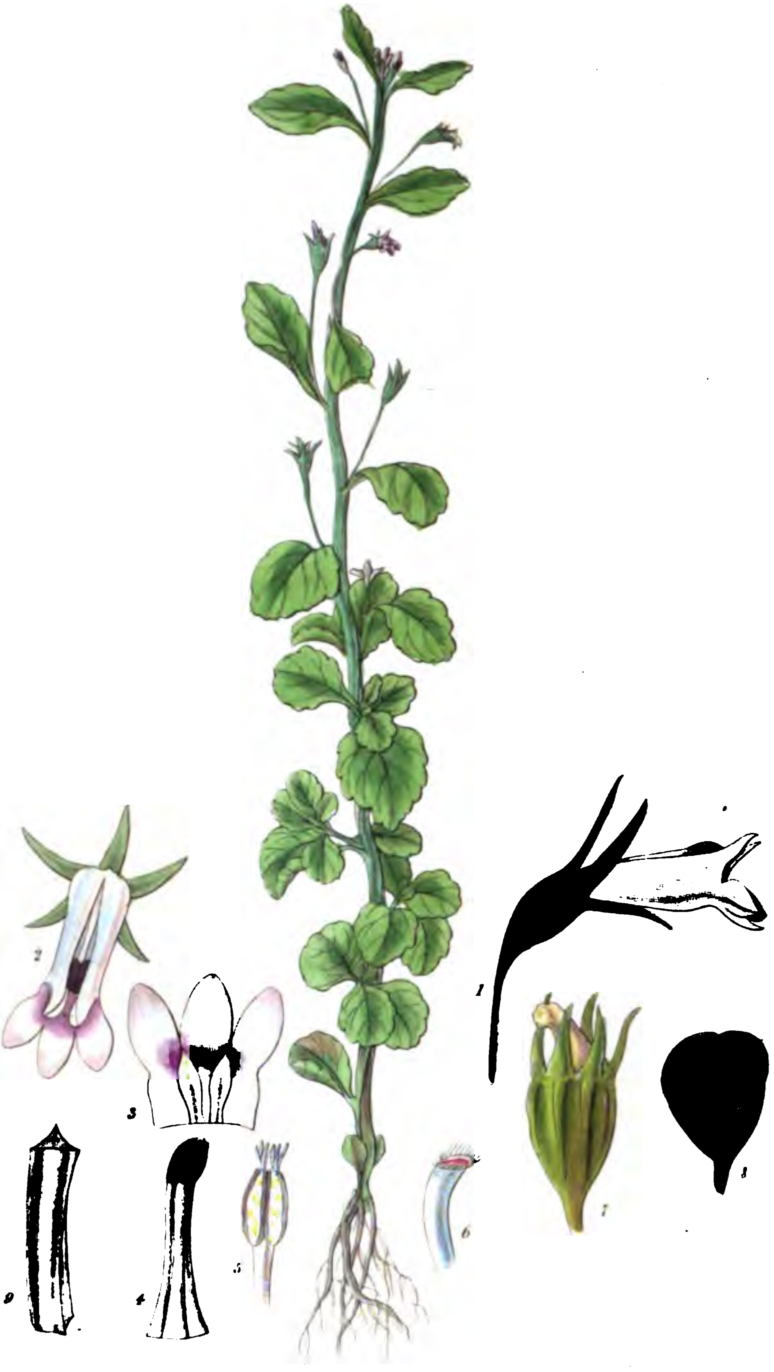
Spike terminal, about 2 or 3 inches long, compact, acuminate, of numerous imbricated flowers. *Bracteas* lanceolato-acuminate, concave, green, caducous. *Calyx* short, whitish, pubescent, with 5 green teeth, of which the 3 lowermost are rather the longest, and 10 longitudinal green ribs. *Corolla* of 5 unequal petals. *Vexillum* ovate, straight, its sides deflexed, yellowish-white, with a long claw, which is, for the greater part of its length, at a considerable distance from the other petals. *Alæ* oblongo-falcate, appressed to the carina, yellowish-white, the extremity violet-coloured; carina of 2 subovate, clawed petals, united by their lower edge, larger than the alæ, yellowish-white, tipped with blue: both the alæ and carina have their claws incorporated with the *tube of the stamens;* this is cleft above at the base, and terminated in 10 filaments, each tipped with a deep orange-coloured anther, bearing yellow pollen. *Germen* ovate, pubescent, rising in part above the slit of the tube of the stamens; the style concealed, for the greater portion of its length, by the stamens; the *stigma* obtuse, glabrous.

Pericarp a one-seeded, roundish, pubescent, gibbous *legumen,* inclosed within the persistent calyx. *Seed* large, somewhat kidney-shaped. *Cotyledons* 2, large; *radicle* pointing upwards.

The genus *Dalea* has been confounded with *Psoralea*, from which it differs essentially in its monadelphous stamens, and in the tube of these stamens bearing the alæ and carina. It has a still nearer affinity with *Petalostemon*, in which the petals are likewise adnate with the stamens, and in which, as well as in the present genus, the leaves are furnished with glands, but, besides that the point of their insertion is different, *Petalostemon* has but 5, not 10, stamens.

All the species of *Dalea* are natives of either North or South America: the present individual is indigenous to the latter country, where it was, if I mistake not, first detected by HUMBOLDT and BONPLAND. It is, I believe, still rare in our gardens. The figures here given were made from fine specimens communicated to me by Mr SHEPHERD of the Liverpool Botanic Garden, in the month of September 1822.

Fig. 1. Entire flower. Fig. 2. Claws of the petals. Fig. 3. Stamens and pistil, the petals being partly removed. Fig. 4. Anther. Fig. 5. Calyx, including the seed-vessel. Fig. 6. Seed-vessel, removed from the Calyx. Fig. 7. Seed. Fig. 8. Embryo.—*All more or less magnified.*



Lobelia micrantha

LOBELIA MICRANTHA.

Small-flowered Lobelia.

PENTANDRIA MONOGYNIA.—NAT. ORD. *CAMPANULACEÆ.*

GEN. CHAR.—*Corolla* tubo hinc fisso (rarò integro); *limbo* quinquepartito. *Antheræ* connatæ. *Stigma* bilobum (nunc indivisum). *Capsula* bilocularis (raro trilocularis), apice supero bivalvi.—*Herbæ, vel Suffrutices, pleræque lactescentes. Folia alterna, integra vel laciniata, rarò fistulosa. Flores racemosi, terminales vel axillares, solitarii, pedicellis bibracteatis vel nudis. Antheræ sæpius barbatæ.*—*Br.*

DIV. I.—*Pedunculi axillares uniflori. Herbaceæ.*

Lobelia *micrantha;* glabra erecta, caule acute triquetro, foliis ovato-rotundatis repando-dentatis subpetiolatis, pedunculis folio longioribus, capsula obovata.

Root small, fibrous, annual. *Stem* 4–6 inches high, erect, acutely 3-angled, with the angles subulate, quite glabrous, sometimes simple, more frequently branched near the base, the branches spreading, from 1 to 4 inches in length. *Leaves* alternate; the *lower* ones nearly orbicular, the *upper* ones broadly ovate, the *supreme* ones ovate, all glabrous or very slightly pilose above, with their margins repando-dentate, the base attenuated into a shortish foot-stalk.

From the axils of the leaves, towards the upper part of the stem, arise the solitary slender *flower-stalks,* about an inch long, and bearing single *flowers.*

Calyx glabrous, green, with 5 spreading subulate segments. *Corolla* extremely minute, pale purplish, pubescent. *Tube* cylindrical, slit down on the upper side for nearly the whole length, and exposing the stamens. *Limb* in 2 *lips,* upper one of 2 small, acute teeth, pointing obliquely upwards; the lower one of 3 ovate, acute slightly deflexed segments, within of rather a deep purple colour with a transverse pale band, at the base having 2 oblong pale green swellings or glands. *Stamens* united into a sheath by the filaments and the anthers, about as long as the tube. *Anthers* purplish, each with a tuft of white hairs at the extremity.

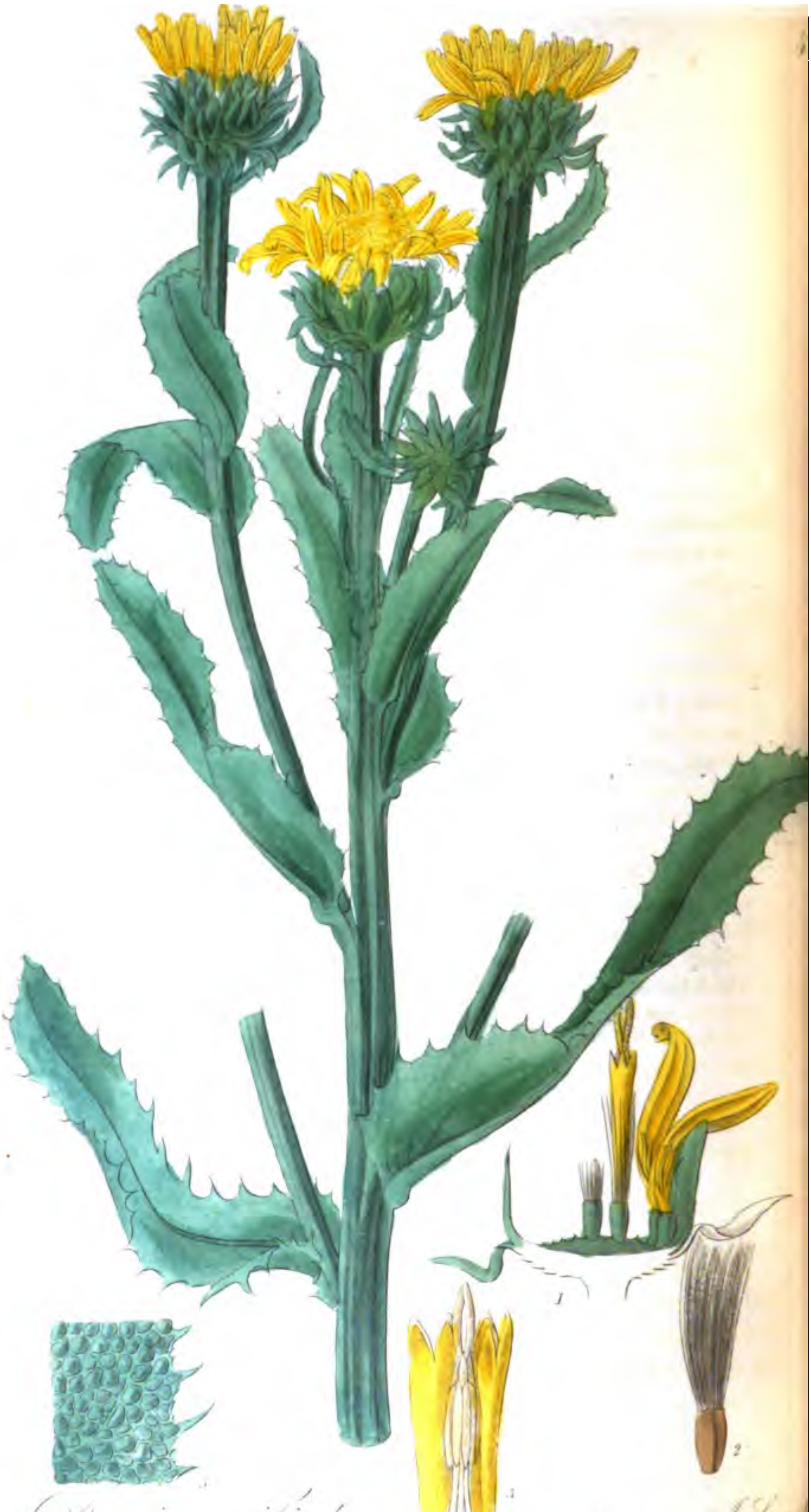
Pollen yellow. *Germen* inferior, ovate, attenuated at the base, and marked with 5 elevated ribs. *Style* cylindrical, as long as the stamens. *Stigma* fringed, purplish. *Capsule* obovate, terminated by the persistent segments of the calyx, and by the withered corolla; opening by two fissures, one on each side at the extremity, 2-celled. *Seeds* numerous, attached to a central spongy *receptacle*.

A hitherto undescribed species, native of Nepaul, and communicated to our garden by the excellent Dr WALLICH.

I am not acquainted with any species of this genus with which the present can be confounded. It is clearly of the same family with the *Lobelia cuneiformis*, figured by LABILLARDIÈRE in his *Flora of New Holland*, (the *L. alata* β of BROWN), like that plant having axillary one-flowered peduncles, and a remarkably triquetrous stem. But the leaves and capsule, as well as the size of the whole, are widely different; and the diminutiveness of the flowers in this species forms a striking character. I possess, in my herbarium, a *Lobelia* from the same country, in many respects nearly allied to this, but different in its pubescent stem and leaves, and in the vastly larger size of the inflorescence.

The present species flowered in the stove of our garden, during the autumn of 1822, and bore seeds freely.

Fig. 1. Side view of a flower. Fig. 2. Upper view of the same. Fig. 3. Lower lip of the limb. Fig. 4. Stamens, enclosing the style. Fig. 5. Single Anther. Fig. 6. Summit of the style and stigma. Fig. 7. Capsule. Fig. 8. The same cut through transversely. Fig. 9. Section of the stem.—*All more or less magnified.*



Donia ciliata

J. Swan

DONIA CILIATA.

Ciliated Donia.

SYNGENESIA POLYGAMIA SUPERFLUA.—NAT. ORD. *COMPOSITÆ.*
CORYMBIFERÆ, *Juss.*—SYNANTHERÉES. DIV. ASTERÉES, *Cassini.*

GEN. CHAR.—*Receptaculum* nudum. *Pappus* setaceus, caducus? *Calyx* imbricatus, hemisphæricus.—*Br. in Hort. Kew.*

Donia *ciliata;* foliis oblongis obtusis semiamplexicaulibus ciliato-serratis, laciniis calycinis linearibus planis, seto acuminatis, caule herbaceo.—*Nutt.*

Donia ciliata, NUTTALL, *in Journ. of the Academy of Nat. Sciences of Philadelphia,* vol. ii. (1821), p. 118.

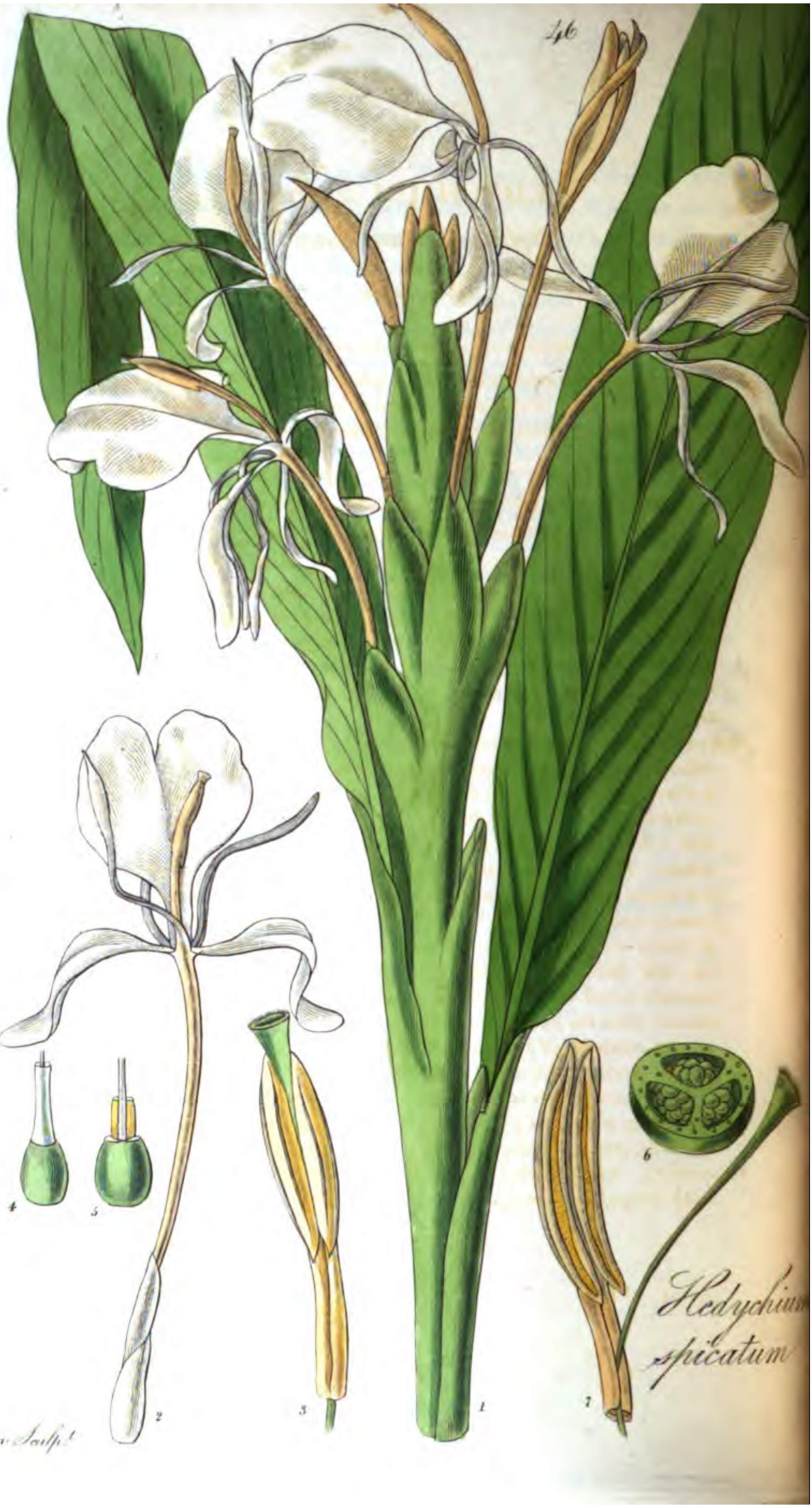
Root subfusiform, fibrous, biennial. *Stem* from 1 to 2 feet high (in its native country 4 or 5 feet), erect, branched, furrowed, glabrous, the branches proceeding from the axils of the leaves. *Leaves* from 2 to 4 inches long, oblong, obtuse, slightly concave, rigid, waved, gradually smaller upwards, the margins strikingly ciliato-serrate, the midrib strong, keeled at the base, and forming a swelling where it is inserted upon the stem; with indistinct lateral nerves. The whole substance of the leaf is beautifully reticulated with pellucid veins, as may be seen by holding it up against the light.

Flowers solitary, terminal upon the stems and branches, yellow, showy. *Involucrum* hemispherical, formed of numerous linear imbricated scales, of which the outer ones are squarrose, the inner ones erect, all of them acuminate, and almost aristate. *Receptacle* naked, pitted. *Florets of the ray* ligulate, patent, bidentate; *Germen* destitute of pappus; *Florets of the disk* tubular, 5-toothed; *Stamens* yellow; *Anther* with an acute appendage at the top, none at the base; *Germen* pappose; *Stigmas* two, filiform, pubescent; *Seed* or *Pericarp* ovato-oblong; *Pappus* sessile, of numerous scabrous bristles.

Evidently allied to the *Donia squarrosa* of PURSH and of the *Botanical Magazine,* t. 1706, but differing from it, even at first sight, in its smaller flowers, and in the shorter scales of the involucre, and more especially in its far larger leaves, which are decidedly ciliato-serrate. There are, nevertheless, some points wherein the present plant does not agree with the genus *Donia* of Mr Brown, which is stated to have a "caducous pappus;" and if, as Mr Brown is of opinion, *Donia* is the same with *Grindelia* of Willdenow, then there exists a farther disparity in the character of "setæ 3–4;" the plant now under consideration having, assuredly, a pappus composed of many setæ, which are not, either, as far as I could discover upon examining a much advanced germen, at all caducous.

Donia ciliata was discovered by Mr Nuttall in the Arkansa territory of North America, growing on the alluvial banks both of the river Arkansa and of the Great Salt River, flowering from August to October. From seeds communicated by that gentleman to the Liverpool Botanic Garden, the specimen here delineated was raised. Mr Nuttall observes, that there are few more desirable autumnal plants than the present, for the open border; and that in the garden belonging to the University of Philadelphia, it proves perfectly hardy, as it will also probably do in this country.

Fig. 1. Portion of the Involucre and of the Receptacle, from which most of the florets have been removed. Fig. 2. Young perianth with its pappus. Fig. 3. Upper part of a central floret, shewing the Anthers and Stigma. Fig. 4. Seta of the Pappus. Fig. 5. Appearance of a portion of the leaf, when held up against the light.—*All more or less magnified.*



Hedychium spicatum

v Sculp.t

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HEDYCHIUM SPICATUM.

Spiked Garland-flower.

MONANDRIA MONOGYNIA.—NAT. ORD. *SCITAMINEÆ*, *Brown.*—CANNÆ, *Juss.*

GEN. CHAR.—*Corolla* tubo longo gracili, limbo duplice utroque tripartito, interiore resupinato. *Capsula* trilocularis, trivalvis. *Semina* numerosa, arillata. *Embryo* simplex, perispermo vitelloque instructus.—*Roxb. in Fl. Ind.*

Hedychium *spicatum;* floribus laxe spicatis, spathis obtusis unifloris, stamine labelli limbo rotundato emarginato breviore.

Hedychium spicatum, SMITH, *in Rees' Cycl.*—*Bot. Mag.* t. 2300.

Stem of the plant which flowered in our stove between 3 and 4 feet high. *Leaves* a foot or more in length, distichous, lanceolate, glabrous and dark green above, pubescent and paler beneath, slightly waved, with a central rib and several parallel oblique nerves, their bases furnished with long sheaths, and having an ovate, concave ligule, where the sheath joins on to the blade of the leaf.

Spike of flowers terminal, from 6 inches to a foot in length, composed of many oblongo-ovate circumvolute, large, green bracteas, within each of which is always a single fragrant flower, having two delicate inner bracteas, enveloping its base, and reaching a little above the outer bractea. *Corolla* with a long slender tube, slightly curved, and of a yellowish dingy brown colour. *Limb* in two portions, nearly equal in length; outer one of 3 narrow linear segments, an inch or an inch and a half long, at first erect then patent, and twisted, dirty white. Inner portion of the limb pure white, of 3 very unequal segments, of these two are linear-spathulate and spreading, the third a lip, having a short unguis or claw, and a very large orbiculate waved subcarinated emarginate lamina or border. *Filament* much shorter than the labellum, incorporated with the tube, thickish, grooved for the reception of the style and between the lobes of the oblong, yellowish 2-celled, and, at the base, 2-lobed *Anther*. *Germen* obtusely triangular, green, glabrous, 3-celled; *ovules* attached to the centre. *Style* very long, protruded just beyond the *Anther*, and having at the base, on one side, two cylindrical upright orange-coloured glands, (abortive stamens?). *Stigma* funnel-shaped, depressed in the centre, green, beautifully fringed at its margin.

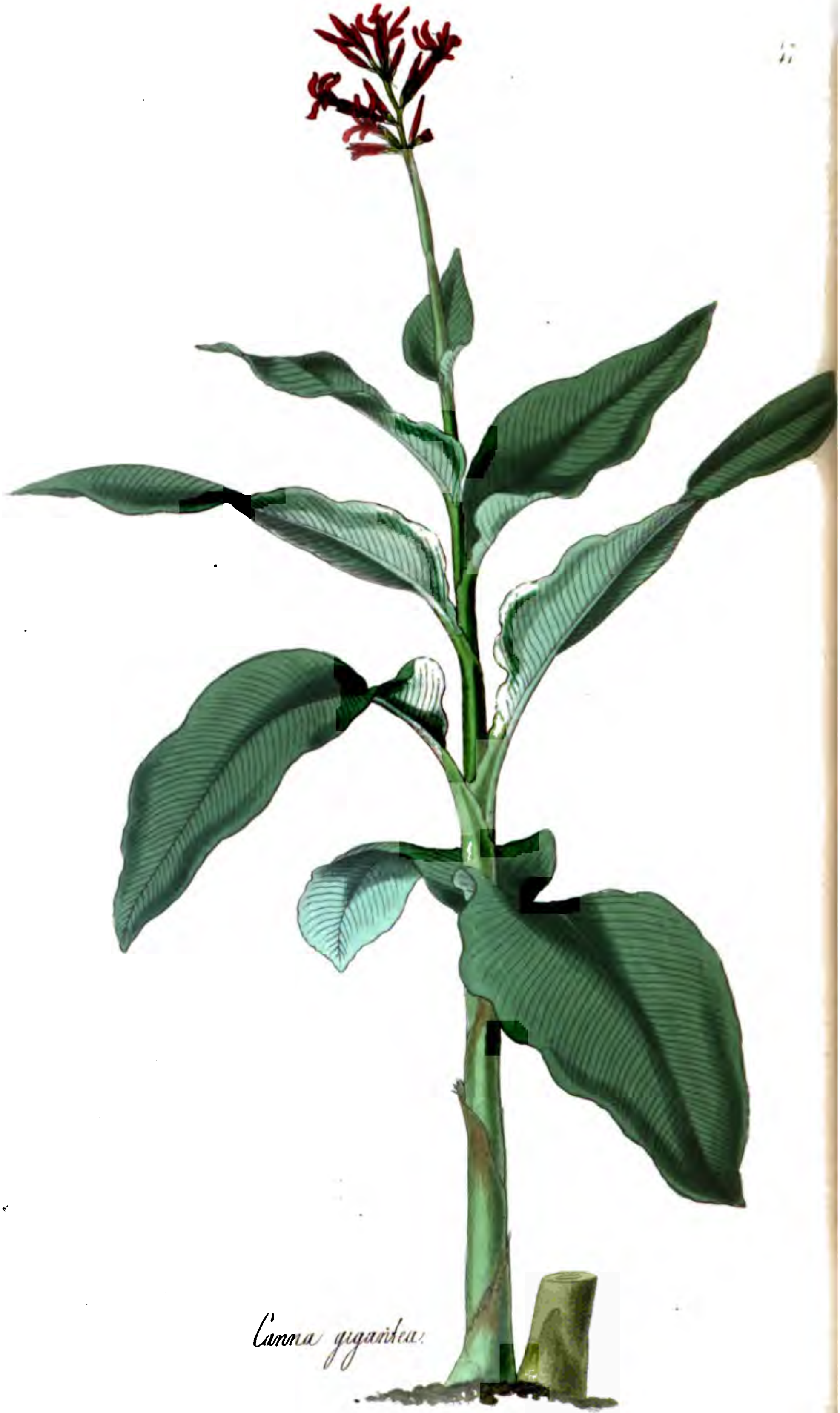
This charming plant, which recommends itself no less by the size and beauty of its snow-white blossoms, than by their fragrance, which resembles that of the *Common Jessamine*, flowered in the stove of our Botanic Garden in the month of October 1822, from roots that we had received from Dr WALLICH.

We have, at various times, been favoured with flowering specimens of this plant, from Messrs SHEPHERD of Liverpool, who named it *Hedychium spicatum*, under which appellation it is described by Sir J. E. SMITH in REES' Cyclopædia.

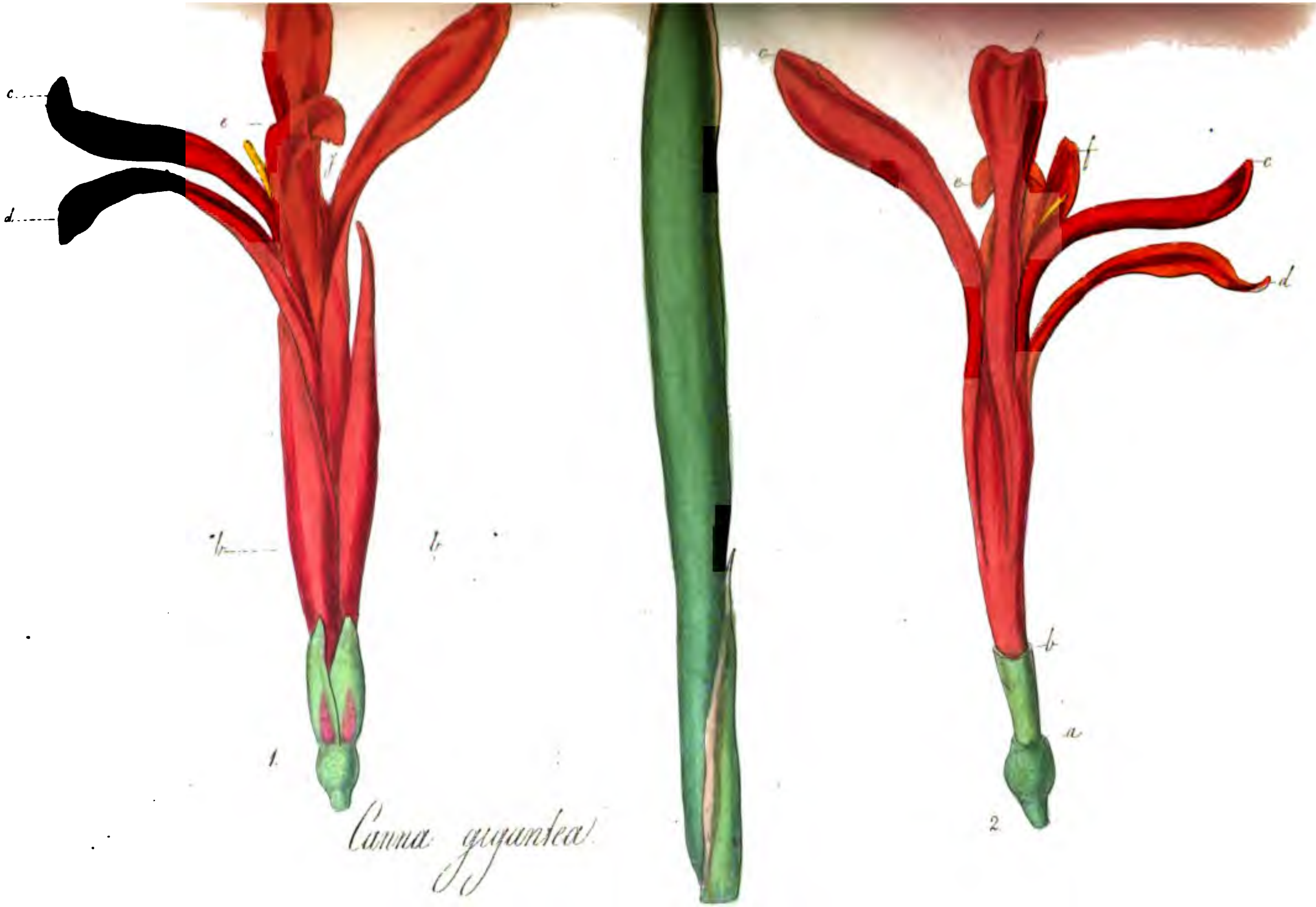
Although properly a stove plant, this species has endured the winter, and flowered in the open air, in the garden of Mr KENT, at Clapton; but from the specimen which thus blossomed, as figured in the *Botanical Magazine*, it will be seen how much inferior it is to our plant, the produce of the hot-house.

It was discovered in Upper Nepaul by my kind and valued friend Dr FRANCIS BUCHANAN HAMILTON of Leny House, and is called *Wohutty Iwa* in its native country, where it is much admired for its beauty and fragrance. It differs, in many respects, from the five species of *Hedychium* described in the *Flora Indica* (and the genus appears confined to the East Indies), approaching perhaps, indeed, to the *H. elatum* of Mr BROWN, in the Botanical Register, in the form of its flowers. The disposition of the blossoms in the spike, and the structure of the spike itself, are totally different; and from every described individual, this may be known by its long slender tube, and its filament, so much shorter than the labellum.

Fig. 1. Extremity of a plant, *natural size.* Fig. 2. Entire flower, with its two inner bracteas (calyx of some authors), at the base, *natural size.* Fig. 3. Summit of a stamen, with the style passing through its groove. Fig. 4. Germen and portion of the corolla and style. Fig. 5. Germen, with the corolla removed, to shew the base of the style and the 2 glands, or abortive stamens. Fig. 6. Germen cut through, to shew the ovules. Fig. 7. Upper portion of a stamen, with the style forced from out of the groove.—*All more or less magnified.*



Canna gigantea.



Canna gigantea

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CANNA GIGANTEA.

Tall Indian-Shot.

MONANDRIA MONOGYNIA.—NAT. ORD. *CANNÆ.*

GEN. CHAR.—*Anthera* simplex, margini filamenti petaloidis affixa. *Stylus* spathulatus, adnatus tubo corollæ: *stigma* lineare. *Capsula* 3-locularis, 3-valvis; *semina* plura.—*Roxburgh.*

Canna *gigantea;* foliis petiolatis oblongo-lanceolatis, perianthii limbo interiore trifido, laciniis inæqualibus una cum labello lineari-spathulatis recurvo-patentibus.

Canna gigantea, REDOUTÉ, *Liliaceés,* v. vi. t. 331.—*Bot. Register,* t. 206.
Canna patens, Rosc. *in Linn. Trans.* v. viii. p. 338.

This truly magnificent species throws up many *stems* from the same root, which reach to the height of from 6 to 8 feet, and are formed of the long sheathing bases of the leaves. The *leaves* themselves vary somewhat in form, and remarkably in size, upon different parts of the stem; the lowermost ones being two feet in length and petiolated; thence, as they proceed upwards, they gradually become smaller and broader, so that the uppermost leaves are almost cordate, and not above 6 inches long; the whole are of a most beautifully vivid green, with numerous parallel transverse nerves springing from the central rib.

The *flowers,* of four inches or more in length, are terminal, racemed, the main stalk concealed by two long sheathing bracteas, green, with a brown edge; the *pedicels,* which spring always in pairs, are likewise furnished with small ovate bracteas, which soon wither and fall off.

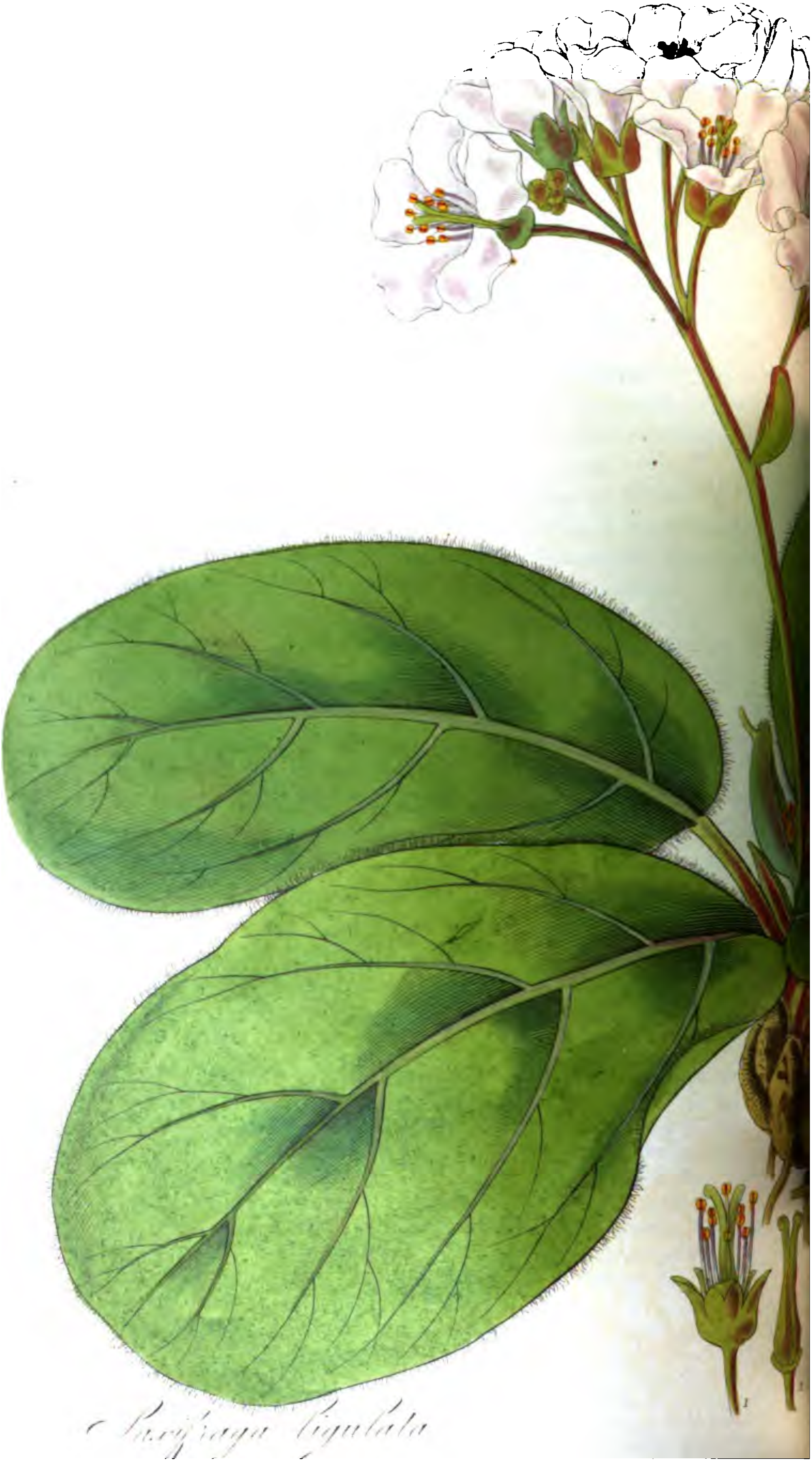
Calyx of 3 ovato-lanceolate, pale yellowish-green segments, having a purple spot at their base. *Corolla* almost wholly of one uniform scarlet colour, tubular, formed of a double limb, of which the outer one consists of 3 lanceolate, erect, submembranaceous segments, with their margins involute; the inner one is divided into 3 linear spathulate segments, of which two are nearly equal in size, the third (a lateral one) is much narrower and less spathulate, corresponding in shape with the *labellum,* which is oblique, and together with the three segments just described, recurvo-patent, entire, or occasionally a little jagged at the point. *Stamen: filament* petaloid, broader than the *labellum,* revolute at the extremity, of the same colour as the perianth, bearing the yellow anther on its margin, and embracing with its base, the linear spathulate, truncate, viscid style, which is of the same colour as the rest of the flower.

In this genus, as in the *Orchis* tribe, the labellum is merely one of the divisions of the perianth, or corolla, which generally takes a strikingly different form from the rest of the segments. In the present instance it is otherwise; for, both in its direction and figure, it is almost the exact counterpart of the other segments of the perianth, as may be seen at Fig. 1. & 2. of *Tab.* 48. In this species, too, as in *C. patens*, and probably all the individuals of the genus which are said to have a trifid interior limb of the corolla, two, out of the three segments, are united half-way up from below, as if in reality they formed but one segment split at the extremity, as may be observed at Fig. 2. of *Tab.* 48.

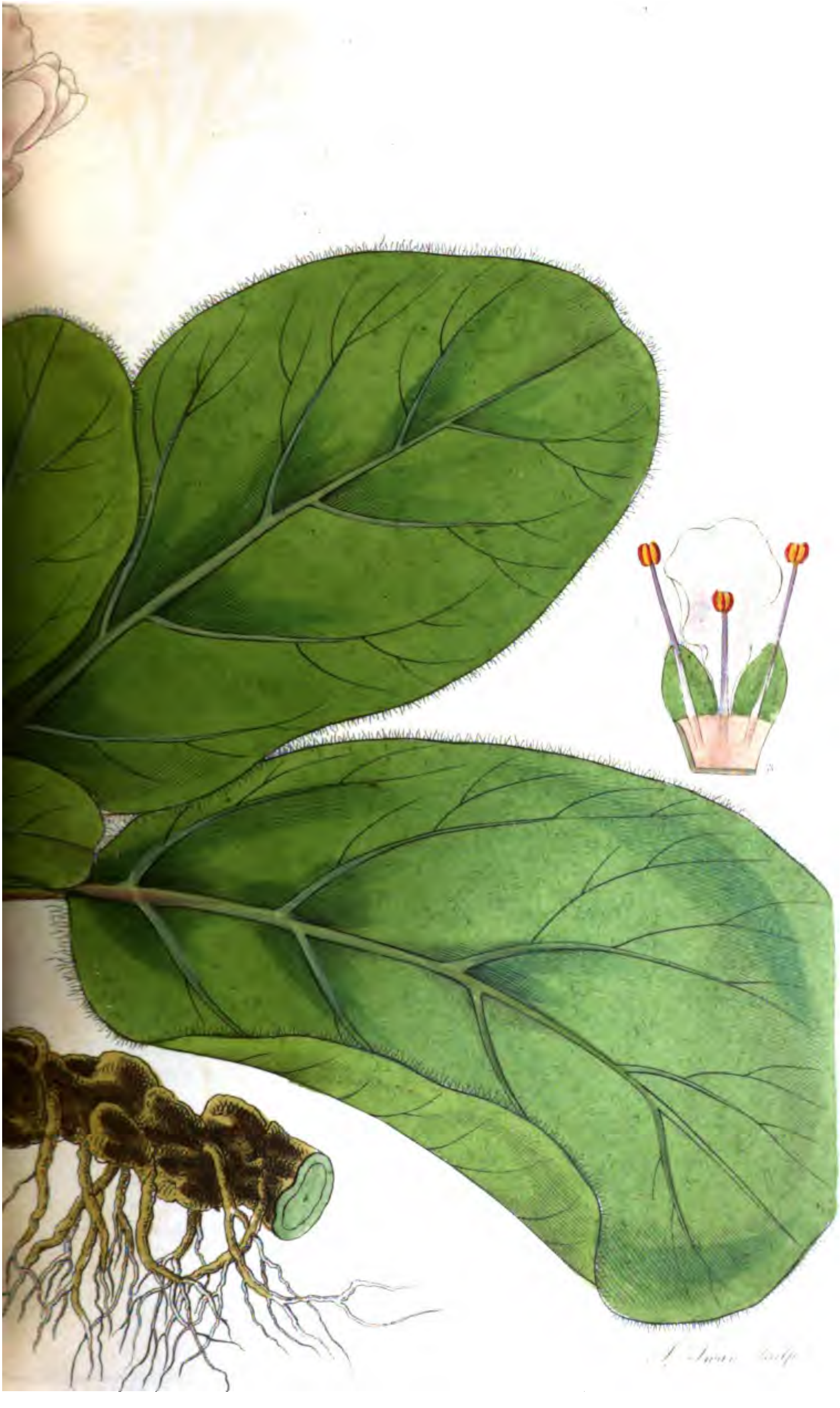
M. Desfontaines appears, according to Redouté, to be the first person who described this species in the Catalogue of the Paris Botanic Garden; and the last-named able artist has given a splendid figure of it in his *Plantes Liliacées*, from the description to which we learn, that although it had been introduced a considerable number of years ago into the gardens about Paris, yet that its native place of growth was unknown. The same remark is made by Mr Gawler in the *Botanical Register;* and unfortunately I am not able to fill up the blank in the history of this species.

Our plants were received from Mr Shepherd of Liverpool: they flowered readily with us in November, and again in the February following, and make a far more striking appearance, not only from the form and bright beauty of their foliage, but also from the size and colour of their flowers, than any other species of the genus, the very rare *C. iridiflora* alone exexcepted. They have, however, the inconvenient fault of requiring a great deal of room.

Tab. 47. Single stem of *Canna gigantea,* reduced to about $\frac{1}{15}$th of the natural size. Tab. 48. Panicle of flowers of *Canna gigantea, nat. size.* Fig. 1. Front view of a flower; *a,* The calyx; *b, b,* The outer limb of the corolla; *c, c, c,* The three segments of the inner limb of the corolla; *d,* The labellum; *e,* The stamen; *f,* The style, and stigma. Fig. 2. Back view of a flower, from which the calyx and exterior limb of the corolla have been removed; *a,* Point of insertion of the calyx; *b,* Point of insertion of the exterior limb of the corolla; *c, c, c,* The three segments of the inner limb of the corolla; *d,* The labellum; *e,* The stamen; *f,* The style,—*very slightly magnified.*



Saxifraga ligulata



J. Swan sculp.

SAXIFRAGA LIGULATA.

Fringe-leaved Saxifrage.

DECANDRIA DIGYNIA.—NAT. ORD. *SAXIFRAGEÆ.*

GEN. CHAR.—*Calyx* quinquefidus, persistens. *Petala* quinque. *Capsula* birostrata, unilocularis. *Semina* numerosa.

Saxifraga *ligulata;* acaulis, foliis petiolatis coriaceis late-obovatis retusis ciliatis, scapo brevi parce bracteato, panicula cymosa.

S. ligulata, WALLICH, *in Asiat. Res. v.* xiii. (with a figure).—DON, *in Linn. Trans.* v. xiii. p. 348.

Megasea? ciliata, HAW. *Saxifrag. Enum.* p. 7.

Root long, thick, perennial, woody and knotted, towards the upper extremity covered with the brown sheathing bases of the former years' leaves, and from the lower part throwing out rather long branching fibres.

Leaves all springing from the summit of this root, spreading, 5 or 6 inches in length, obtuse at the base, retuse at the extremity, their margins somewhat reflexed, most beautifully and strongly ciliated with rigid, whitish hairs: the substance of the leaf coriaceous, the upper surface of rather a deep green, marked with depressed nerves, the under side paler, with prominent nerves. *Petiole* * about an inch, or an inch and a half long, terete, or slightly compressed, at the base broad and sheathing, the upper part of the sheath running up into an elongated process, like the ligule of a grass (whence I presume Dr WALLICH's specific name), and this process, like the margin of the leaf, ciliated.

Scape from 5 to 7 inches high, erect, flexuose, terminated by a cymose panicle of large white or pale rose-colored flowers. At the base of the main branches is a single, large, cymbiform *bractea*, green, ciliated towards the extremity, and having sometimes a fleshy mucro at the back.

Calyx cup-shaped, very obtuse at the base, reddish, with 5 dull green, erect lobes. *Corolla* of 5 large waved *petals*, spreading, clawed, the claw short, always rose-colored, inserted upon the calyx between the lobes and upon the same point with the 5 short stamens. *Stamens* 10, erect, inserted upon the calyx, 5 at the base of the lobes, and 5 at the sinuses; *Filaments* erect, alternately shorter, rose-colored, the taller ones as long as the *Germen; Anthers* roundish, purple. *Germen* entirely free, greenish-flesh-colored, oblong, with 2 longish, nearly erect beaks, or styles, divided almost to the base. *Stigmas* obtuse.

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* There is a peculiarity in the mode in which the margins of this leaf are attached to the petiole, similar to what I have already observed in the leaf of *Orontium aquaticum.* The margins, on each side, are not decurrent with the sides of the petiole, nor do they jut on to them, but they meet almost transversely in the front of the petiole.

This interesting and rare *Saxifrage* has been sent to Dr Wallich, from Katmandu, by the Hon. Colonel Gardner, (the individual to whom I am indebted for many of the most valuable subjects figured in my *Musci Exotici*), and by Mr Smith from Sylhet, in the year 1819. The liberal Director of the Calcutta Botanic Garden, forwarded it in a living state to Mr Shepherd of Liverpool, from the valuable collection of plants under whose care, it was sent to me in flower, in January 1823. The accompanying figure was taken from those specimens, aided by an accurate sketch of the growing plant, also sent by Mr H. Shepherd.

There is a striking resemblance between this plant and the *Saxifraga crassifolia* of Siberia; but, besides the different shape of their leaves, the margins of those of *S. ligulata* are singularly ciliated, and the flowers are larger and more showy, not being very dissimilar in form and hue from a cluster of the blossoms of the crab-apple. The structure of the inflorescence, indeed, is the same with that of *S. crassifolia*, and its peculiarities have given rise, in conjunction with the whole habit of the plant, to the formation of a new genus, *Bergena* of Mœnch, *Geryonia* of Schranck, and *Megasea*[*] of Haworth.

Mr Haworth, without being aware that this species was described by the excellent Wallich, bestowed on it the expressive appellation of *ciliata*.

The name by which this plant is known at Nepaul is *Shanpe-Soak*; at Katmandu it is called *Atia Torongsing*.

Surely the *Megasea cordifolia*, and *M. media* of Mr Haworth, must be considered as mere varieties of *M. crassifolia*. If such be the case, this family or genus only consists of *Saxifraga crassifolia* and *S. ligulata*.

The blossoms of this plant diffuse a very agreeable, primrose-like scent.

Fig. 1. Flower, from which the petals are removed. Fig. 2. Pistil. Fig. 3. Portion of the calyx, to shew the point of insertion of the Petals and Stamens.—*All more or less magnified.*

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[*] *Cal.* campanulato-5-lobatus, inferne melliferus. *Pet.* 5, persistentia. *Stam.* calyci coadunata, usque ejus lobos. *Germen* superum. *Capsulæ* birostratæ basi solum coalitæ. —*Haw. sub Megaseam.*

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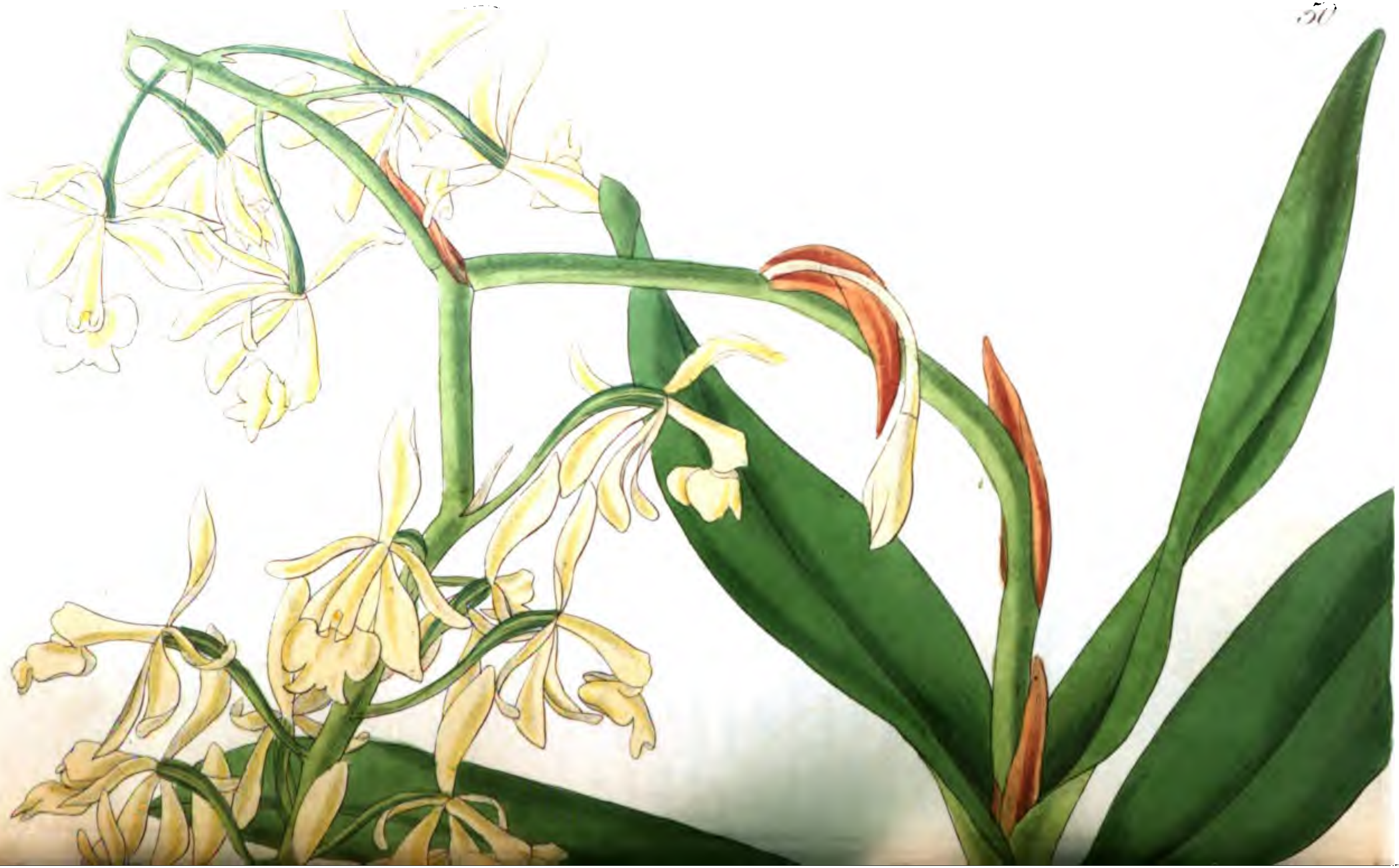

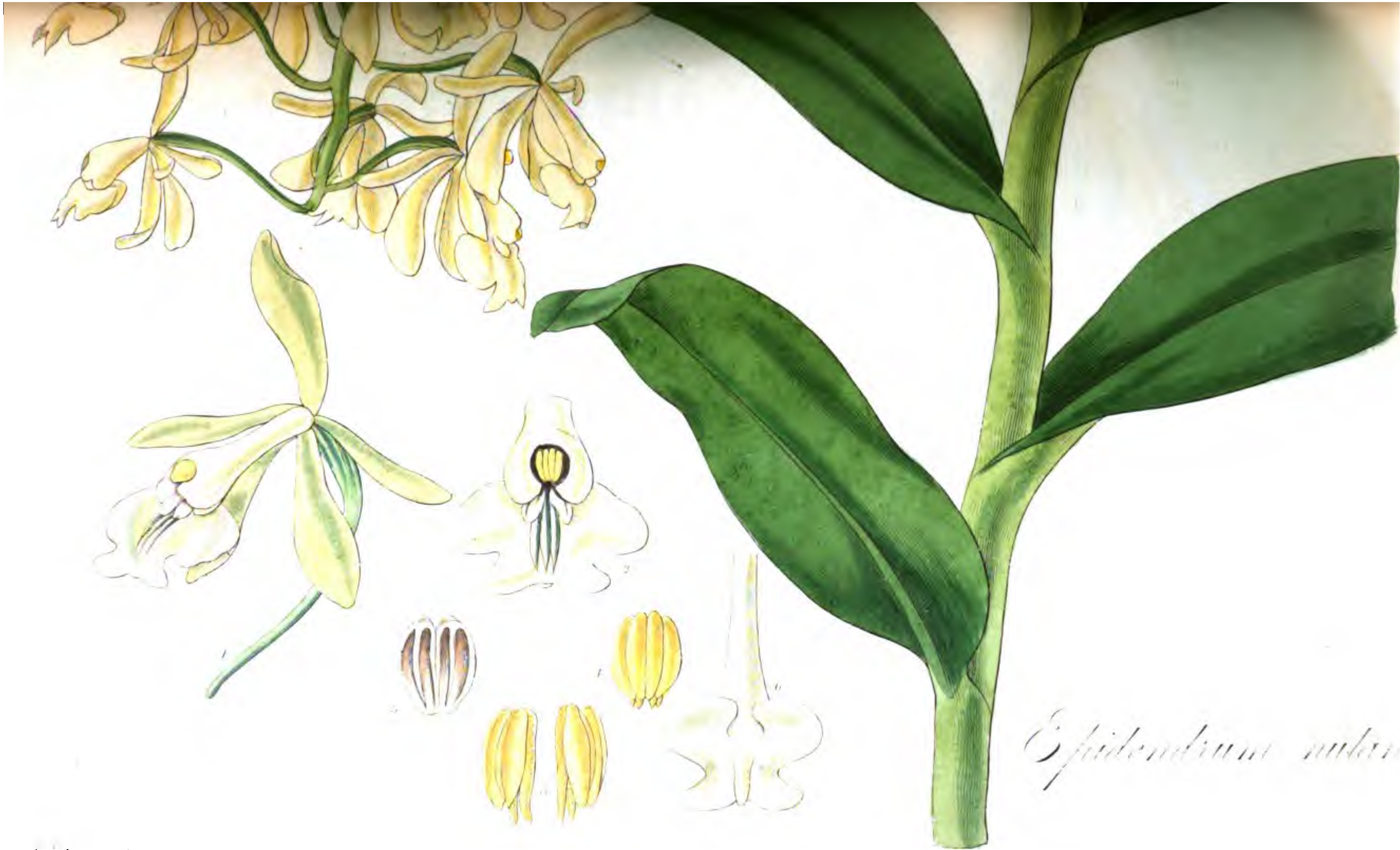

Epidendrum nutans.

J. Swan sculpt.

reception of the *Anther*. This is ovate, notched at the extremity, yellowish-brown, convex, deciduous, 4-celled. When this anther falls away, the 4 pollen-masses, collected into an ovate bright yellow mass, are seen lodged in the hollow of the sinus, just above the concave stigma: when separated, each pollen-mass is observed to be oblong, attached by one extremity to a rather thick, filiform, yellow, granulated, elastic pedicel, which is bent under, and lies parallel with it. *Germen* oblong, striated, slender, tapering into a rather long filiform footstalk.

This fine plant, whose flowers, in addition to their singularity and beauty, are highly fragrant on the approach of evening, was sent to me in the month of January 1822, from the stove of the Liverpool Botanic Garden, by Mr H. SHEPHERD. It was received at that Institution from Messrs LODDIGES of Hackney, under the name of *Epidendrum nutans*, and appears in every essential particular to accord with the description of SWARTZ. But it seems to differ in some respects from the figure so termed in the Botanical Register, especially in the color of the flower and the form of the labellum.

The analysis of the inflorescence represented in the annexed plate, will sufficiently illustrate Mr BROWN's admirable character of the genus.

Epidendrum nutans was introduced into this country in 1793, from Jamaica, (where it is, as its generic name implies, a parasite upon trees), by Rear-Admiral BLIGH, along with many others of the same family, from that island. In its native country, October is the season of its flowering.

Fig. 1. Entire flower. Fig. 2. Front view of the column and labellum; the anther-case being removed, and shewing the pollen-masses. Fig. 3. Inside view of an anther-case. Fig. 4. Pollen-masses united. Fig. 5. Pollen-masses separated. Fig. 6. Back view of the column and labellum. —*All more or less magnified.*

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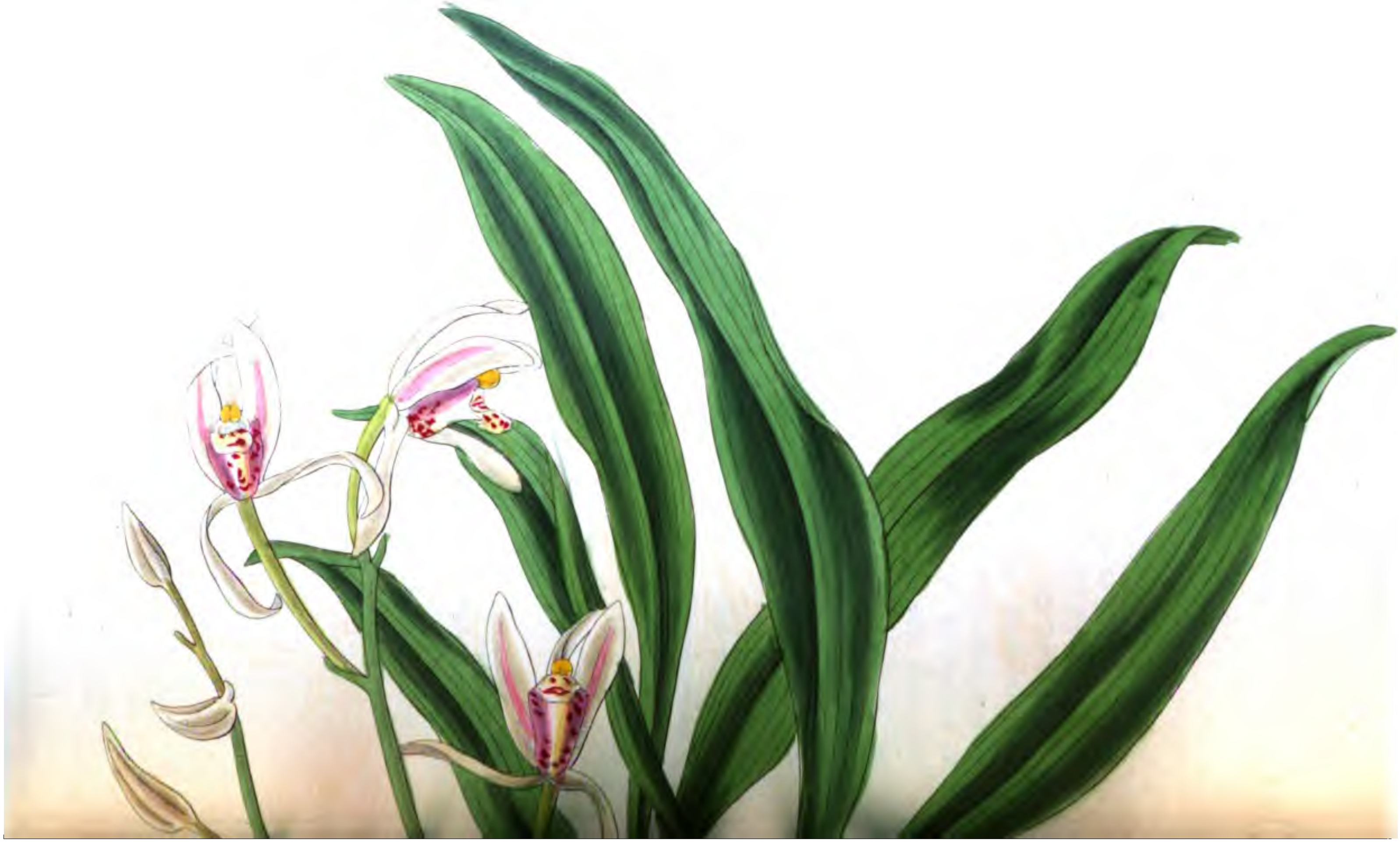

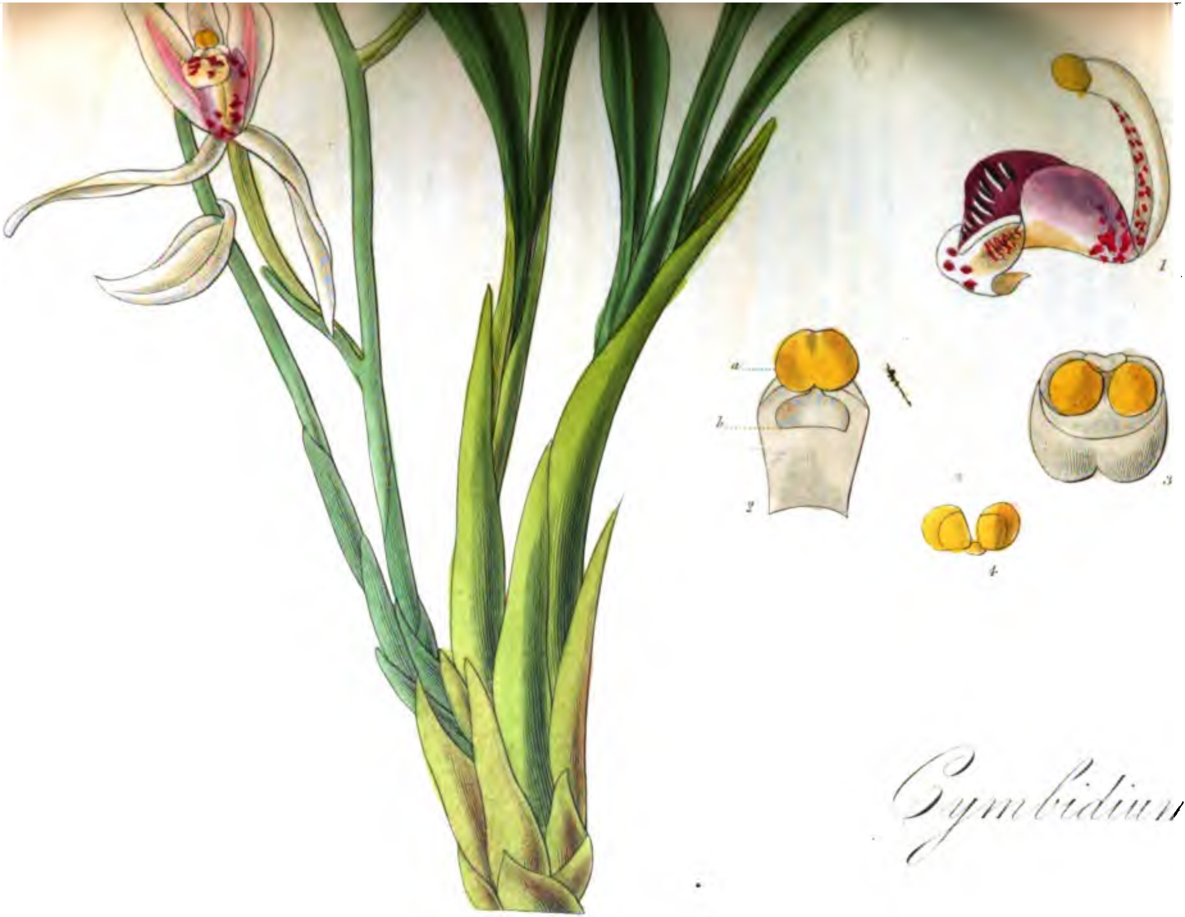

Cymbidium lancifolium

J. Cran Sculpt

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CYMBIDIUM LANCIFOLIUM.

Sword-leaved Cymbidium.

GYNANDRIA MONANDRIA.—Nat. Ord. *ORCHIDEÆ.*

Div. *Anthera terminalis, mobilis, decidua. Massæ pollinis demum cereaceæ.*—Br.

Gen. Char.—*Labellum* ecalcaratum, concavum, cum basi (simplici nec producta) columnæ articulatum. *Petala* patentia, distincta. *Massæ pollinis* duo, postice bilobæ.—*Br.*

Cymbidium *lancifolium;* foliis radicalibus lanceolatis nervosis basi attenuatis, scapo tereti paucifloro, labello oblongo apice recurvato maculato.

Root composed of large, cylindrical, fleshy fibres.

Leaves springing from the root in small fascicles, from 8 inches to a foot in length, lanceolate, waved, acute, striated, rather fleshy, tapering down for a great way into very narrow bases, which are surrounded for a considerable part of their length with large brownish, imbricated, striated, acute sheaths.

Scapes arising frequently in pairs from the summit of the roots, on the outside of the fascicle of leaves, and surrounded at their bases with similar, but smaller, imbricated and convoluted sheaths, rather shorter than the leaves, erect, cylindrical, very pale green, bearing about 4 or 5 moderately sized flowers.

Germen so long and slender as to appear like a footstalk, semiterete, pale green, having a lanceolate membranaceous bractea, about one-fourth of its length at the base.

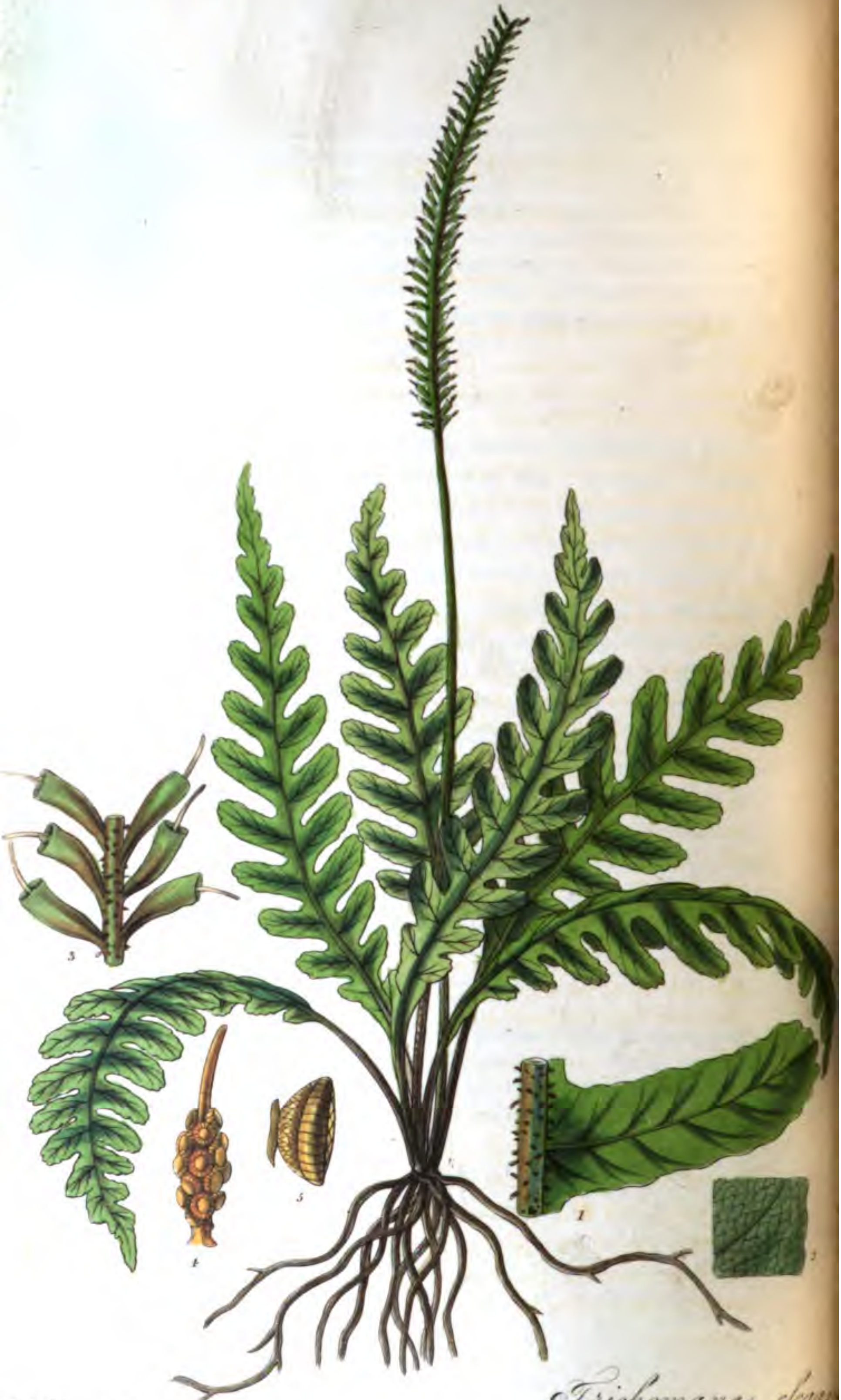
The *five* outer *segments* of the *Perianth* (or petals, as they are usually termed), are spreading, somewhat fleshy, the *three exterior* ones the narrowest, linear, somewhat twisted, white, destitute of any lines or blotches; the *two inner* ones are oblong and acute, slightly concave, white, with a broad and central rose-colored line or band, which does not reach, however, quite to the summit.

Lip articulated with the base of the column, erecto-patent, oblong, almost white on the under side, but spotted at the base; in the inside having a longitudinal elevated ridge, with a deep furrow on the top, 3-lobed, the two lateral lobes broad, obtuse, curved upward, purplish on the outside, with occasionally a few spots; within, of a deep reddish-purple, streaked with a few white vertical lines; the middle lobe is ovate, acute, recurved, white, marked with transverse red lines on each side at its base, and spotted with the same color towards the extremity.

Column nearly as long as the lip, semiterete, curved forwards, white on the outside, spotted with red towards the base within;—near the summit of the inner face is a subquadrate cavity which forms the *stigma* (Fig. 2. *b*.), and, at the very summit, is the hemispherical, obtusely 2-lobed, yellow, moveable *Anther*, containing within it two roundish, compressed, yellow, cereaceous *pollen-masses*, affixed by their base to a small white elastic gland on one side of the margin of the anther. The upper sides of these pollen-masses are seen to have two smaller appendages or lobes, of the same texture as the rest of the pollen-mass.

A native of the East Indies, thence transmitted by Dr WALLICH to Messrs SHEPHERD of the Liverpool Botanic Garden, by whom a flowering plant of it was sent to me in May 1822. Dr WALLICH had attached a name to it, but this being accidentally lost during the voyage, I have ventured to affix one which is expressive of the character that must distinguish this species from its very near allies, *Cymbidium ensifolium*, and *C. sinense*. With the latter it approximates the most, but is very widely removed from it by the form and texture of its foliage. From the former it differs not only in the leaves, which are far broader, and more sensibly attenuated at the base and extremity, but also in the flowers, which, in the present individual, have their three outer segments considerably the narrowest, are of a whitish, not green, hue, and are also destitute of the numerous red lines, with which all the five equally broad petals of *C. ensifolium* are alike marked.

Fig. 1. Column of fructification and Lip of a flower. Fig. 2. Upper part of the Column; shewing *a*, the Anther, *b*, the Stigma. Fig. 3. Anther removed, and turned up, so as to display the attachment of the two Pollen-masses within. Fig. 4. Upper side of the two Pollen-masses.—*All more or less magnified.*



J. Swan Sculpt

Trichomanes elegan

TRICHOMANES ELEGANS.

Elegant Bristle-Fern.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES*, DIV. GYRATÆ, *Br.*

GEN. CHAR.—*Sori* marginales. *Capsulæ* sessiles, receptaculo communi cylindraceo insertæ, intra *Involucrum* monophyllum, suburceolatum, ore hiante, textura frondis.—*Br.*

Trichomanes *elegans;* frondibus sterilibus lanceolatis pinnatifidis incisis, fertilibus linearibus involucris pinnatis.

Trichomanes elegans, RUDGE, *Pl. Guian.* p. 24. t. 35.—WILLD. *Sp. Pl.* v. 5. p. 503.

This singular plant has no apparent *caudex;* its rather stout, wiry, brown, almost simple, longish fibres spring immediately from the base of the fronds.

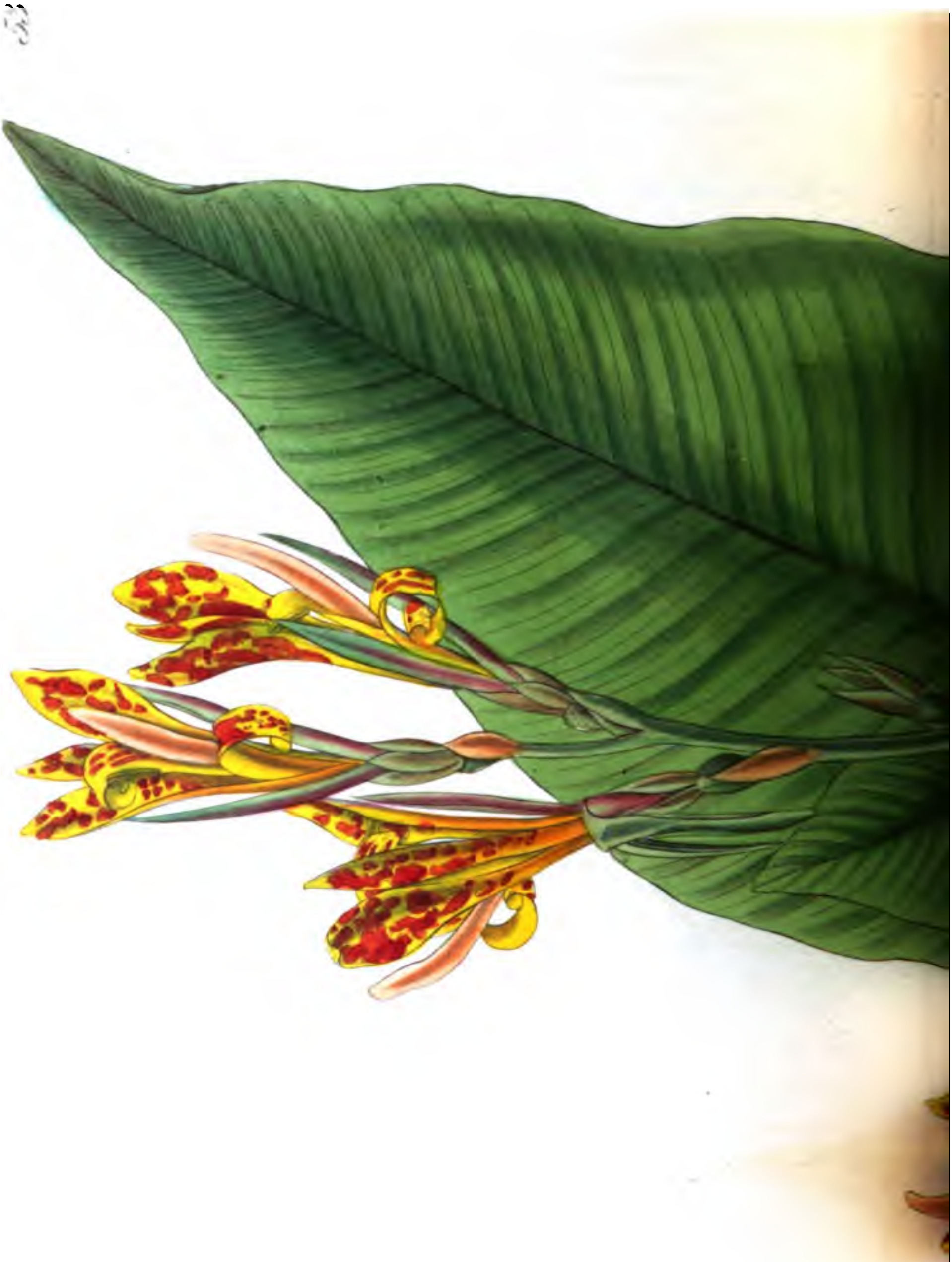
Sterile fronds 4 or 5 inches in length, lanceolate, acuminate, gradually tapering below into a short, dark-colored hispid *stipes,* cut deeply at the margin into several, rather closely placed, oblong, obtuse segments, which are bluntly-toothed, and most so at the extremity. The texture is thin and delicate, minutely reticulated, the color dark green; through the centre runs a hispid rachis, and the segments have a central and several lateral parallel forked nerves.

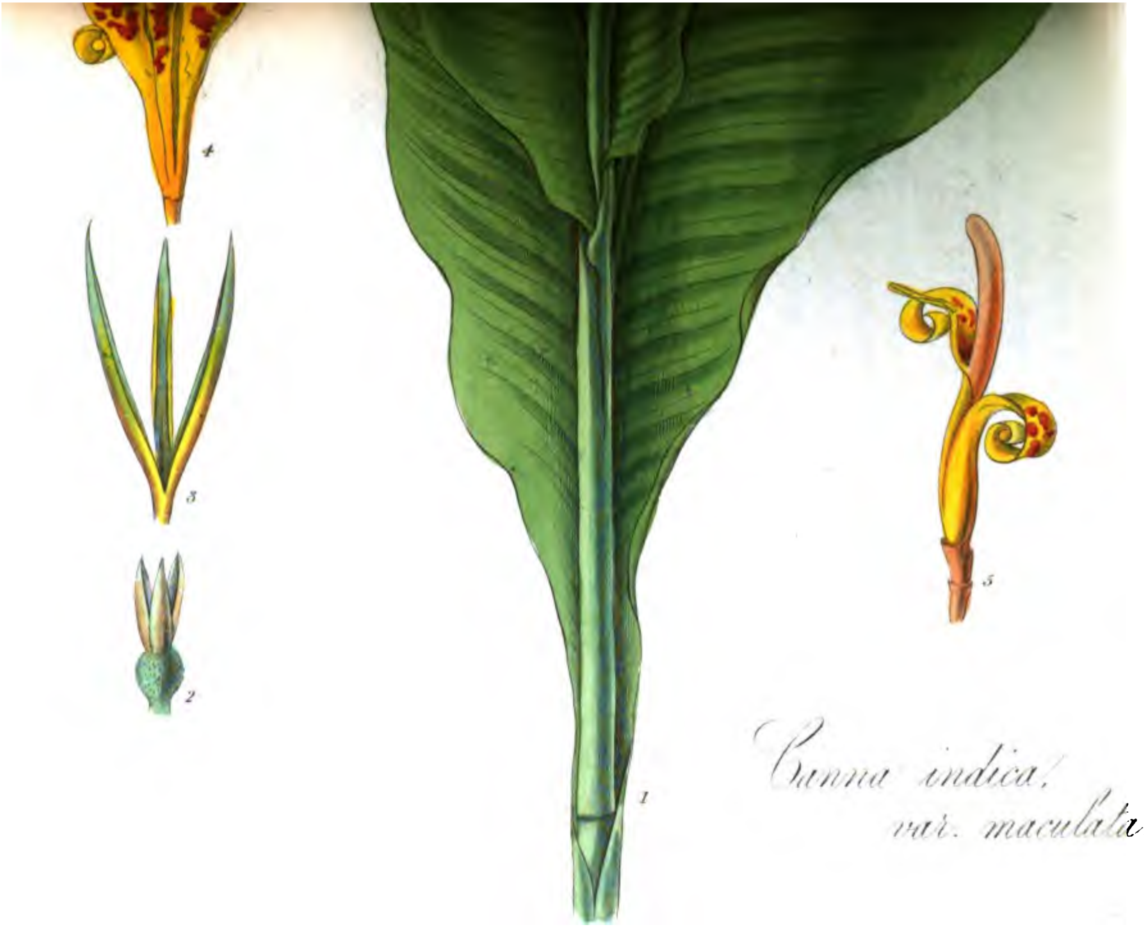
Fertile frond or spike about four inches in length, placed upon a long peduncle; the Involucres arranged in a regularly pinnated manner, about 2 lines in length, oblong or somewhat urceolate, tapering at the base, slightly curved, the mouth open. *Receptacle* half as long again as the involucre, filiform; its lower half covered with small, brown, shining capsules, sessile on their own base, having a complete, elastic, jointed, transverse ring, and bursting irregularly for the discharge of the seeds.

Beautiful as are the individuals, in general, of the genus *Trichomanes,* this, in my opinion, excels them all, and amply deserves the specific name which has been appropriated to it. No species but the present, as far as I am aware, has the involucrum placed in spikes, on a stalk distinct from the common appearance of the fronds; nor has it apparently been known to any author but Mr RUDGE, by whom it is published, as a native only of Guiana, in his fine work on the plants of that country, and where so excellent a figure and description of it are given, as leave no doubt of its identity with the present plant.

It was, therefore, particularly gratifying to me to receive, amongst a great number of other botanical rarities, a very perfect specimen of *Trichomanes elegans*, from the Island of St Vincents, in the West Indies, transmitted by my friend the Reverend LANSDOWNE GUILDING, F. L. S., whose passion for natural history, in all its departments, and for zoology in particular, has induced him to collect materials for a *Fauna* of the West Indies, which he informs me is already in a considerable state of forwardness.

Fig. 1. Pinna of a sterile frond. Fig. 2. Portion of the same, to shew its reticulation. Fig. 3. Portion of the spike of fructification. Fig. 4. Receptacle, with its capsules. Fig. 5. Single capsule.—*All more or less magnified.*





Canna indica,
var. maculata.

[illegible]

CANNA INDICA, *var. maculata.*

Indian Shot: spotted-flowered variety.

MONANDRIA MONOGYNIA.—NAT. ORD. *CANNÆ.*

GEN. CHAR.—*Anthera* simplex, margini filamenti petaloidis affixa. *Stylus* spathulatus, adnatus tubo corollæ; *stigma* lineare. *Capsula* trilocularis, trivalvis, *semina* plura.—*Roxburgh.*

Canna *indica;* foliis petiolatis anguste-ovatis, corollæ limbo interiore trifido, laciniis inæqualibus lanceolato-spathulatis acutis erectis, labello lineari recurvato.

C. indica, ROSCOE, *in Linn. Trans.* v. viii. p. 338.—AITON, *Hort. Kew.* ed. 2, v. i. p. 1.

β. Floribus flavis rubro-maculatis.

Plant 4 feet or more in height; stems erect, simple. *Leaves* about 8 inches long, ovate, or somewhat inclining to lanceolate, acuminate at the point, and tapering down into a more or less sheathing footstalk at the base. The upper leaves broadly oval.

Flowers in a scarcely compounded terminal raceme. *Pedicels* hardly any. *Bracteas* ovate, greenish. *Germen* subglobose, green, tuberculated. *Calyx* of 3 greenish, ovate, erect leaflets, pale at the margin. *Exterior limb* of the corolla of 3 lanceolate, acuminated, carinated segments, of a reddish-brown colour, green at the extremity. *Inner limb* of the corolla having the upper lip of three erect, unequal, between lanceolate and spathulate, acute, entire segments, of a yellow color, spotted with red: the intermediate segment the narrowest. *Labellum* linear, revolute, spotted on the inner surface with red, entirely yellow without. *Filament* in shape like the labellum, yellow, with a few spots of red, erect, revolute only at the extremity. *Anther* linear, yellow. *Style* linear, erect, of one uniform tawny colour.

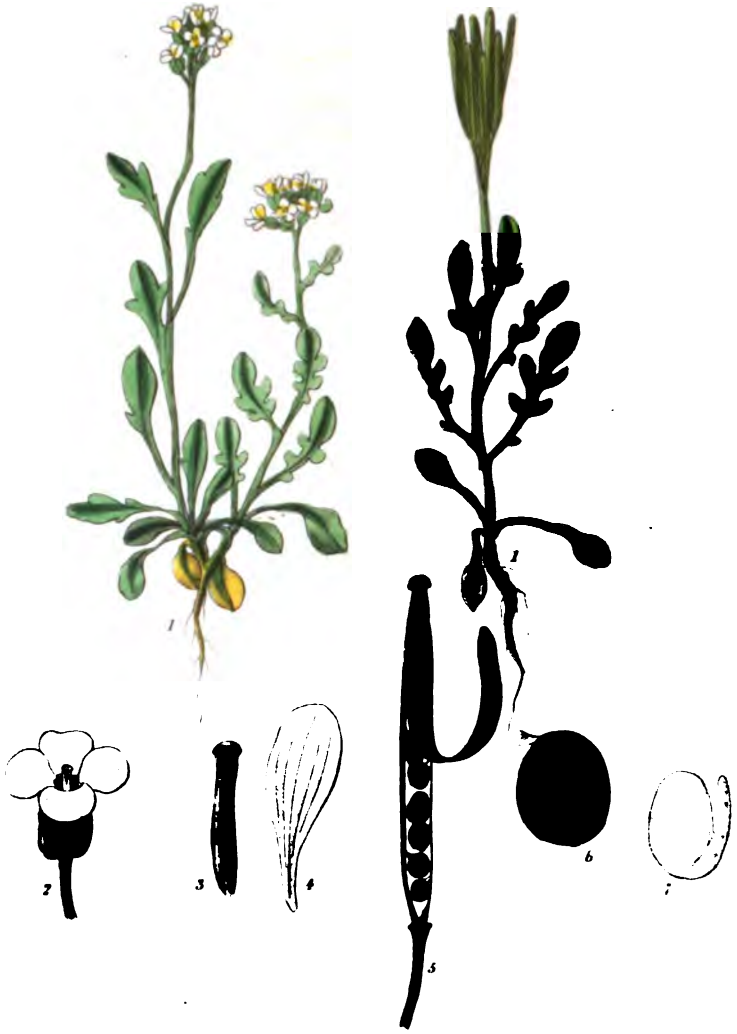
Formerly, every individual of this genus which was cultivated in our gardens, went under the appellation of *Canna indica;* now, this name is scarcely so much as spoken of, and the true species thus designated seems to be almost unknown. By the *true species,* I would be understood to mean that of

Mr Roscoe, who first bestowed on *C. indica*, in the 8th volume of the *Linnean Transactions*, a character by which it may be distinguished from its congeners; and I have the satisfaction of being able to say, that on Mr Roscoe's inspection of the accompanying figure, he pronounced it to be a spotted flowered variety of his *Canna indica*, the original colour of which is wholly scarlet. The rarity of the individual in question must plead my apology for introducing in this work a variation from the common type of a species,—a practice that will be avoided, in future, as much as possible.

What plant was originally intended by Linnæus to bear the name of *Canna indica*, will now, perhaps, be never precisely determined; or rather, if one may judge from his references, that author had, more probably, no one particular species in view. Mr Aiton, in the first edition of the *Hortus Kewensis*, included four species, according to Mr Roscoe, under that name. In the second edition, Mr Roscoe's *C. indica* is taken up, and his specific character adopted; but there is a reference to a figure in Redouté's *Plantes Liliacées* (t. 201.), which, having but two segments to the inner limb of the corolla, cannot belong to this plant, and which, though not quoted by Mr Sims in the *Botanical Magazine*, seems to me exactly to correspond with *C. speciosa* (t. 2317.) of that work.

The Messrs Shepherd have lately informed me, that not even in their rich collection of Scitamineous plants at Liverpool, are they sure of possessing, at this time, the true *C. indica*; and that the present variety was quite unknown to them, as well as to Mr Roscoe.

Fig. 1. Summit of a plant. Fig. 2. Germen and calyx. Fig. 3. Outer limb of the corolla. Fig. 4. Flower deprived of the Calyx and outer limb.—*All of the natural size.*



Cardamine resedifolia

CARDAMINE RESEDIFOLIA.

Mignonette-leaved Lady's Smock.

TETRADYNAMIA SILIQUOSA.—NAT. ORD. *CRUCIFERÆ.*

GEN. CHAR.—*Siliqua* linearis marginibus truncatis: *valvis* planis enervibus (elastice sæpius dissilientibus), dissepimento angustioribus.—*Br. in Hort. Kew.*

Cardamine *resedifolia;* foliis inferioribus indivisis, superioribus tripartitis pinnatisve stipulatis.—*Br.*

C. resedifolia, LINN. *Sp. Pl.* p. 913.—JACQ. *Austr. App.* t. 21.—WILLD. *Sp. Pl.* v. iii. p. 482.—BROWN, *in Hort. Kew.* ed. 2. v. iv. p. 104.—DE CAND. *Regn. Veg. Syst.* v. ii. p. 250.

Root small, and apparently annual, as it is stated in *Hortus Kewensis* to be: yet said by ALLIONI to be biennial, and by WILLDENOW perennial. *Stems* one or more from the same root, erect, slightly zig-zag, simple, from 2 to 4 inches high, glabrous.

Lowermost leaves broadly ovate, upon long footstalks, undivided and entire; the rest more shortly petiolated, more or less deeply pinnatifid, with from 3 to 7 lobes, the terminal lobe generally the largest, and glabrous; sometimes the lateral lobes are so small that the leaves appear only incised at the margin; all of them are glabrous, rather deep green.

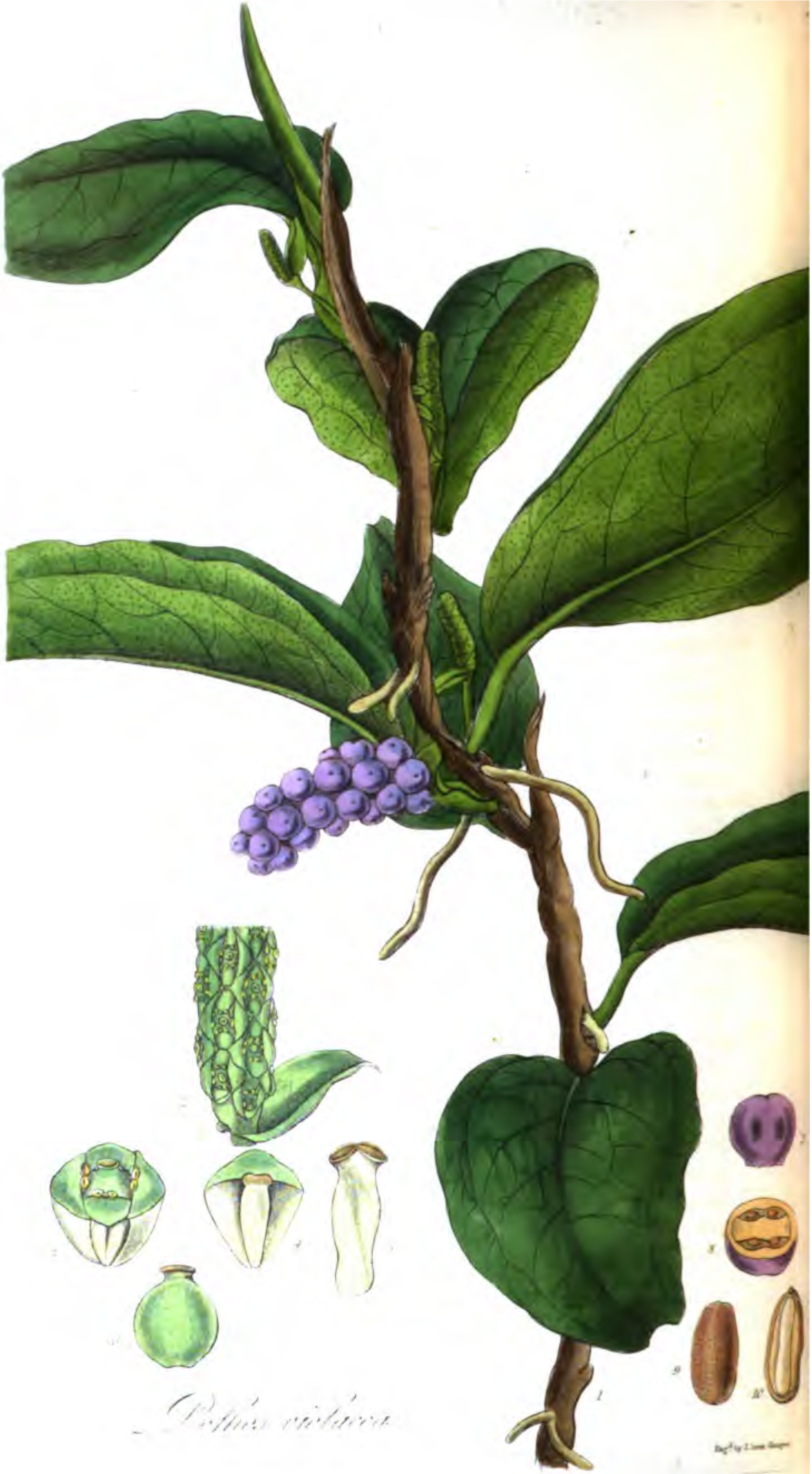
Flowers in small terminal corymbs, white. *Calyx* of 4 ovate, glabrous, erect leaflets. *Corolla* of 4 obovate, somewhat unguiculate petals, marked with lines. *Stamens* 6, tetradynamous. *Pistil* somewhat angular, columnar. *Stigma* sessile. *Pods* nearly an inch long, erect, crowded. *Valves* bursting from below elastically. *Seeds* numerous, broadly ovate, almost orbicular, compressed.

A pretty little alpine plant, not uncommon upon moist rocks in the mountains of Switzerland and Savoy, and on the Pyrenees; but of rare occurrence in our gardens, where it would be well suited to ornament rock-work.

MR SHEPHERD was kind enough to communicate the specimen here figured from Liverpool, in the month of June.

DE CANDOLLE mentions the affinity of this species with the *Cardamine bellidifolia*, which is distinguished by its undivided upper leaves, with very long footstalks, and that author even doubts if the present individual may not prove a luxuriant variety of it.

Fig. 1. Plants, nat. size. Fig. 2. Single flower. Fig. 3. Pistil. Fig. 4. Petal. Fig. 5. Pod with one of the valves springing back and shewing the arrangement of the seeds. Fig. 6. Single seed. Fig. 7. Embryo.—*All more or less magnified.*



Pothos violacea

Eng^d by J. Lee Bungay

POTHOS VIOLACEA.

Violet-fruited Pothos.

TETRANDRIA MONOGYNIA.—NAT. ORD. *AROIDEÆ.*

GEN. CHAR.—*Spatha* monophylla. *Spadix* cylindraceus, undique floribus tectus. *Perianthium* tetraphyllum. *Bacca* di-tetrasperma.

Pothos *violacea;* foliis ovato-oblongis utrinque acutis reticulato-venosis trinervibus coriaceis subtus punctatis, spatha ovato-lanceolata acuminulata reflexa spadice breviore, pedunculo tereti.

Pothos violacea, SWARTZ, *Fl. Ind. Occ.* v. i. p. 270.—WILLD. *Sp. Pl.* v. i. p. 685.—AIT. *Hort. Kew.* ed. 2. v. i. p. 268.—HUMB. et KUNTH, *Nov. Gen.* v. i. p. 63. t. 19.

This appears to be a climbing parasitical plant in its native forests. *Stems,* in our stoves, reaching to the height of 2 or 3 feet, slightly branched, knotted, throwing out from various parts of their whole length thickish fleshy roots, and sheathed, especially the younger shoots, with long narrow green stipules, which remain withered, brown and lacerated, for a considerable time.

Leaves alternate, about 5 inches long, ovato-oblong, acute at each extremity, marked with 3 nerves, the lateral ones obscure, and these connected by reticulated nerves; coriaceous, dark green, paler and dotted beneath. *Petioles* about an inch long, cylindrical, thick.

Spadix axillary, or rather arising from the base of the petiole, scarcely an inch in length, cylindrical, situated upon a peduncle about as long as itself, and furnished at the base with a spatha shorter than itself, ovato-lanceolate, acuminulate, reflexed, and with its margins decidedly recurved.

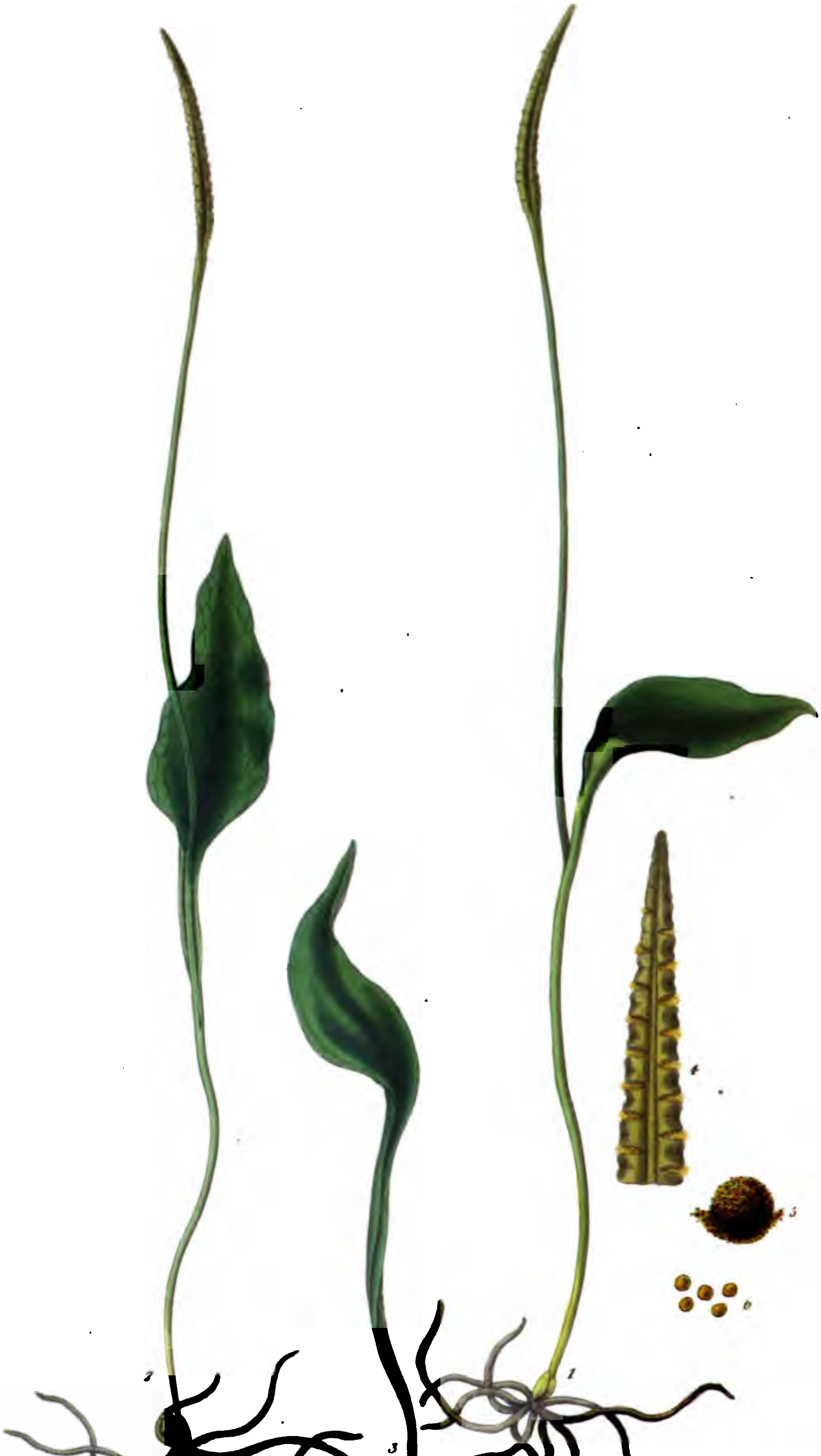
Flowers closely crowded, entirely covering the spadix. Each of these consists of 4 cuneate, truncated, hollow scales (perianth or calyx of most authors) surrounding the organs of fructification. *Stamens* 4 round each germen, one in each scale, and rising with its anther just above them. *Filament* remarkably dilated, white, semicylindrical at the very base. *Anther* terminal, its back turned to the pistil, didymous, 2-celled, the cells opening transversely, yellowish as well as the pollen. *Germen* spherical, rather longer than the stamens, 2-celled, with 4 ovules. *Style* none. *Stigma* with a longitudinal groove, spreading. *Berries* surrounded at the base with the scales of the perianth, numerous upon the spadix, which is now much elongated, purple, semipellucid, depressed at the top, and marked with a small scar, the remains of the stigma: 2-celled, 4-seeded. *Seeds* (as far as I can judge) pendent, attached to a large pulpy central receptacle, oblong, convex on one side, nearly plane on the other. *Integument* crustaceous, but covered with a soft white coat, spotted in lines minutely with red. *Albumen* fleshy. *Embryo* oblong, white, thickened and greenish at one extremity.

The genus *Pothos* seems to be almost wholly confined to the warmer parts of South America. The present species is an inhabitant of the West Indian Islands; and if the reference to AUBLET, given in WILLDENOW, be correct, of Guiana also. BROWN met with it in Jamaica, in the woods about St Ann's Bay, where, he says, it sticks very close to the trunks of whatever trees it grows upon. SWARTZ gathered it upon the high mountains of the same country, and the celebrated travellers MM. HUMBOLDT and BONPLAND, between Carthagena de Indias and Mahates, in New Granada, flowering in October.

I must observe, however, that the figure in the Nova Genera et Species Plantarum represents both the leaf-stalk and the petioles of the spadix as considerably longer than in our cultivated specimen.

In our stoves, the *Pothos violacea* grows readily in common soil, with a piece of stick set up in the pot, for its roots to strike upon, as in the parasitic and orchideous plants. It bears flowers and ripe fruit at the same time during the greater part of the year; the former are inconspicuous, from their greenish color and diminutive size, the latter remarkable for their delicate semitransparent and purple hue.

Fig. 1. Portion of a plant, nat. size. Fig. 2. Portion of the spadix. Fig. 3. Single flower. Fig. 4. Leaflet of the perianth, with a stamen. Fig. 5. Stamen. Fig. 6. Germen. Fig. 7. Berry. Fig. 8. Section of a Berry. Fig. 9. Seed. Fig. 10. Section of a seed.—*All more or less magnified.*



Swan Glasgow

Ophioglossum petiolatum.

OPHIOGLOSSUM PETIOLATUM.

Petiolated Adder's-Tongue.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES.*

GEN. CHAR.—*Capsulæ* nudæ in spicam articulatam disticham connatæ, uniloculares, transverse dehiscentes, bivalves.—*W.*

Ophioglossum *petiolatum;* spica caulina longe pedunculata, fronde ovato-acuminata laxe reticulata, basi longe attenuata.

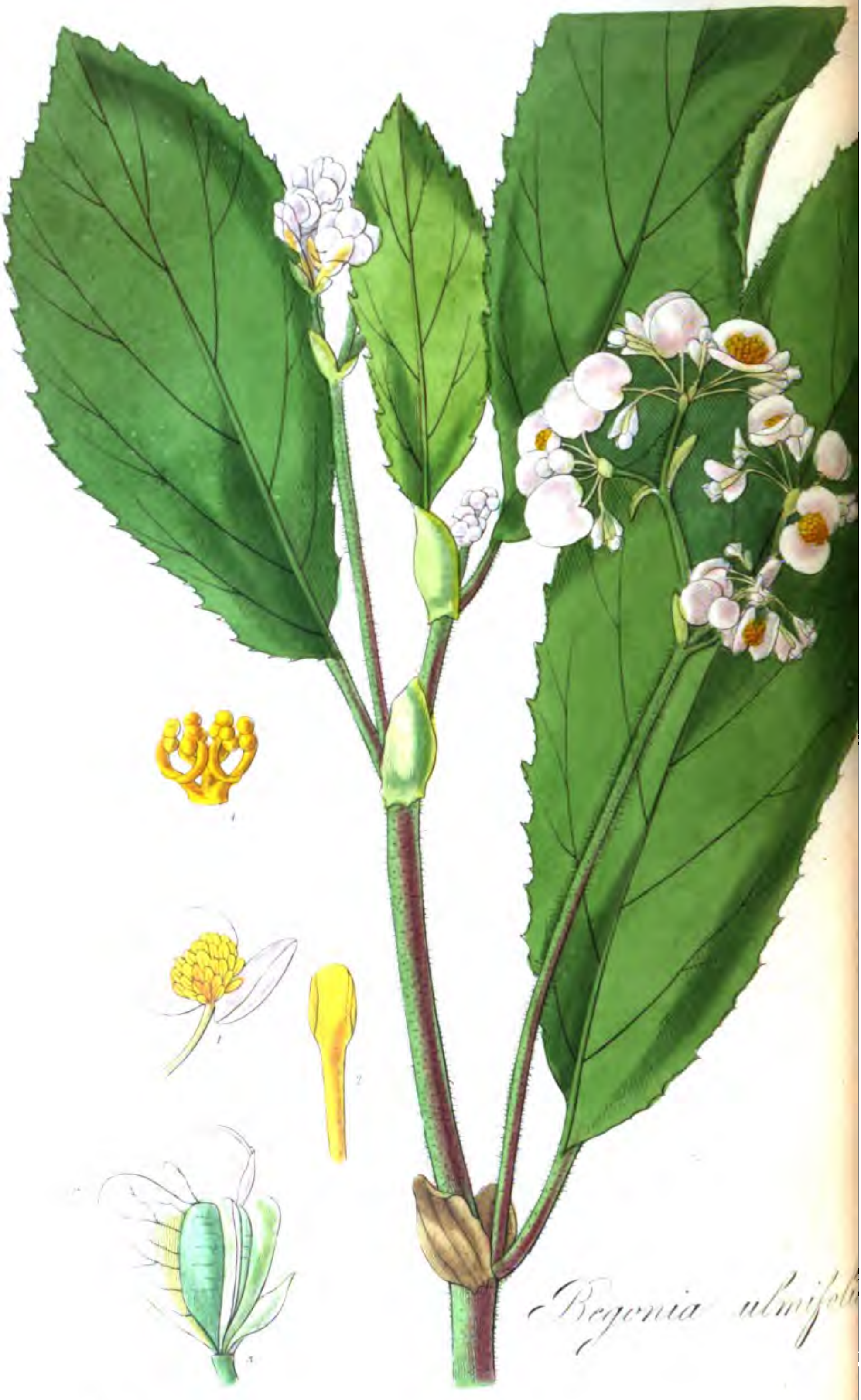
Root consisting of several whitish, simple, fleshy, flexuose fibres. *Stipe* 3 or 4 inches long, erect, flexuose, bearing a single terminal ovato-lanceolate, acuminate, waved, thin, membranaceous leaf or frond, which, when dry, is seen to be marked with large, oblong reticulations, which are scarcely visible in the living plant; the base of this frond is suddenly contracted into a narrow channelled kind of footstalk.

Spike originating from the base of the channelled petiole, pedunculated; peduncle longer than the stipes, slender, erect, cylindrical; spike itself linear-lanceolate, compressed, consisting of numerous, distichous, coadunate spherical capsules, which in age burst transversely and contain a globular mass of minute, yellowish granules.

Living individuals of this species of *Adder's-tongue,* attached to the roots of some plants from the West Indies, were received at the Liverpool Botanic Garden, whence Messrs SHEPHERD forwarded some excellent specimens to me, with the name of *O. ovatum* of WILLDENOW annexed to them. With the description of this author, the present individual, indeed, in some respects corresponds; but BORY DE ST VINCENT, who found it in the Isle de Bourbon, and who is the original authority for the *O. ovatum,* says expressly that it differs from the European *O. vulgatum,* in having a shortly pedunculated spike, which hardly exceeds the length of the frond; whereas one of the striking characteristics of the present species is the great length of the peduncle, which surpasses that of the stipes. The whole plant is more slender, its frond far narrower, and much more acuminated than that of *O. vulgatum*. The reticulation of the leaf, which is chiefly apparent in the dried specimen, exists equally in both species.

The figure of RUMPHIUS, in the *Herbarium Amboinense* (v. 6. t. 68. f. 2.) which is cited by WILLDENOW, as a synonym to his *O. ovatum*, seems scarcely different from *O. vulgatum*, the shape of its frond being almost precisely similar.

Fig. 1. Plant, *natural size*, drawn from the living individual. Fig. 2. Figure drawn from a dried specimen; and, Fig. 3. Barren frond, *natural size*. Fig. 4. Portion of a spike. Fig. 5. Cluster of seeds. Fig. 6. Seeds.—*More or less magnified.*



Begonia ulmifoli

Care sculp.

BEGONIA ULMIFOLIA.

Elm-leaved Begonia.

MONŒCIA POLYANDRIA.—NAT. ORD. *BEGONIACEÆ*, *Bonpl. De Cand.*

GEN. CHAR.—MAS. *Cal.* 0. *Corolla* polypetala. *Petala*, plerumque quatuor, inæqualia. FŒM. *Cal.* 0. *Corolla* petalis 4–9, plerumque inæqualibus. *Styli* tres, bifidi. *Capsula* triquetra, alata, trilocularis, polysperma.

Begonia ulmifolia, WILLD. *Sp. Pl.* v. iv. p. 418.—PERS. *Syn. Pl.* v. ii. p. 564. HAW. *Saxifr. Enum.* 1821, p. 197.

Stem two feet or more in height, declined, herbaceous, green, succulent, branched, beset with a few soft scattered hairs, which are deciduous below. *Leaves* large, handsome, alternate and distichous, petiolate, with large ovate stipules at the base, obovato-oblong, acute, unequal, in their lower half duplicato-dentate; very glossy above, furrowed with veins, hispid with soft white hairs, deep green; below paler, the nerves prominent, furnished with a few soft hairs. *Petioles* very much shorter than the leaves, green, hispid.

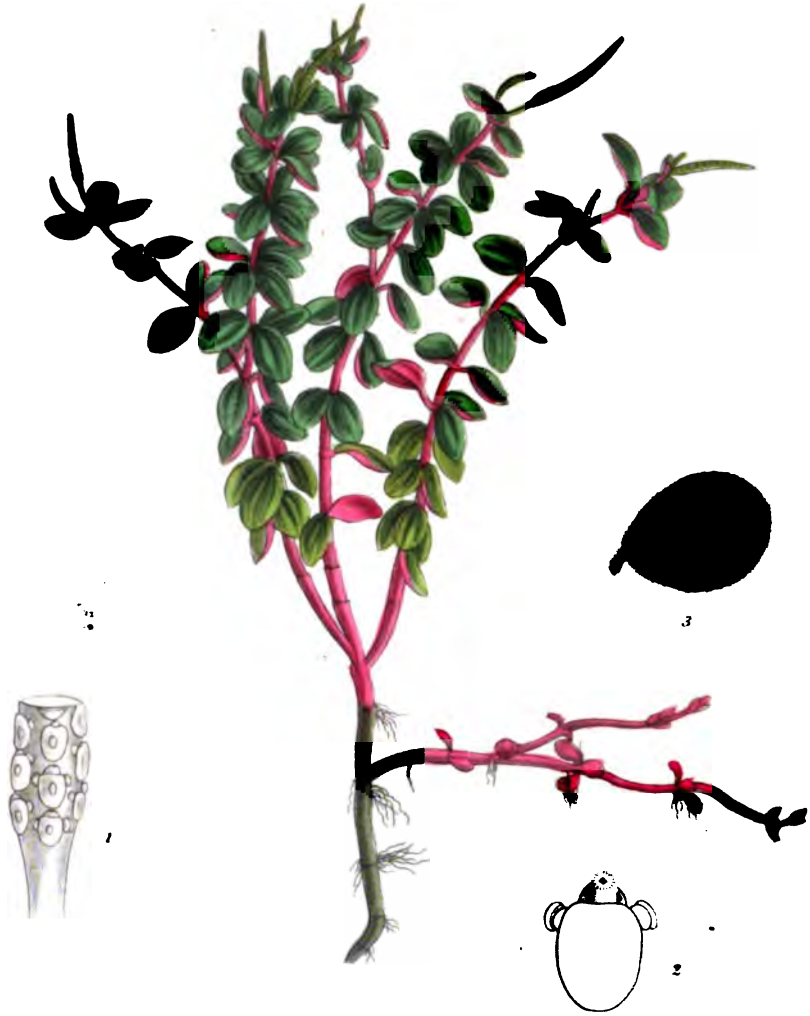
Peduncles arising from the axils of the superior leaves, 4 to 6 inches in length, yet shorter than the leaves, twice forked at the extremity, each ramification bearing an umbel of mixed male and female flowers; every general and partial flower-stalk is furnished with an ovate, membranaceous bractea, resembling the stipules.

Male flowers rather large, showy, white, or tinged with rose color, composed of 2 rounded, nearly plane, spreading petals. *Anthers* numerous, yellow, united at the base. *Filaments* rather long. *Female flowers* with a germen, which is triangular, pilose, and trialate, wings unequal; one of them very large, white, veined, with a protruded, rather acute point; the two others green, short, very obtuse. *Corollas* of 4 unequal, 2 small and ovate, and 2 large and rounded, white petals. *Styles* 3, bifid, curved: *Stigmas* 2-lobed; all of them glanduloso-punctated, yellow-green.

This *Begonia*, appropriately enough named *ulmifolia* by WILLDENOW, makes a very handsome appearance in the stove, with its large glossy, distichous, luxuriant foliage, and its delicate, pale rose-colored flowers, which have bright yellow stamens.

It is a native of South America, and was first cultivated in this country, as it appears, by Mr **Loddiges**, previous to the year 1820. It flowers in December, at which season the specimen here represented was sent to me by my kind friend Mr H. **Shepherd**. To the same excellent cultivator, our Botanic Garden is likewise indebted for the possession of this species.

Fig. 1. Male flower. Fig. 2. Stamen. Fig. 3. Female flower. Fig. 4. Style and stigmas.—*All magnified.*



Peperomia rubella.

J. Swan sculp.

PEPEROMIA RUBELLA.

Red-stalked Peperomia.

HEXANDRIA MONOGYNIA.—Nat. Ord. *PIPERACEÆ, Humb. et Kunth.*—Piperitées, *De Cand.*—Urticis affinis, *Juss.*

Gen. Char.—*Spadix* cylindraceus, floribus undique tectus. *Stamina* duo. *Stigma* indivisum. *Bacca* monosperma. *Caulis* herbaceus.—*Humb. et Kunth.*

Peperomia *rubella;* pubescens, caule subdiffuso valde ramoso terete, foliis subquaternis lato-ellipticis carnosis subtus convexis discoloribus, spadicibus terminalibus axillaribusque subsolitariis.

Piper rubellum, Haw. *in Revis. Pl. Succ.* p. 3.

Stems diffuse, and often throwing out runners at the base, cylindrical, red throughout, jointed, smooth, or only furnished with a very slight pubescence, sending forth roots from the lower joints. *Leaves* quaternate, occasionally quinate, or, from injury, only binate; broadly elliptical, very fleshy, plane above, and dark green, very convex beneath, and red even to the uppermost ones, pubescent; their general shape not unlike the fronds of *Lemna gibba:* in the older leaves the upper surface is of one uniform green color, but in the younger ones there are three pale nerves, one central and two marginal, whence branch out almost at right angles several small veins, forming a beautifully reticulated appearance; *petiole* very short, red, pubescent.

Spadices of flowers single, or two or three together at the extremity of the stems, or solitary at the axils of the superior leaves, about an inch long, slender, cylindrical, borne upon very short footstalks, pale green. *Scales* rather closely placed. *Anthers* 2, almost sessile, round.

A very elegant little species, particularly so when its shoots put forth their new leaves, which are beautifully reticulated with yellowish lines, an appearance that almost wholly disappears with age.

Our plants were received at the Glasgow Botanic Garden from the West Indies. None of the numerous species of

Piper, described in ROEMER and SCHULTES' extensive list seem to accord with this; but it appears sufficiently to correspond with *P. rubellum* of HAWORTH.

Fig. 1. Portion of a Spadix. Fig. 2. Scale, with its flower. Fig. 3. Leaf. —*All more or less magnified.*

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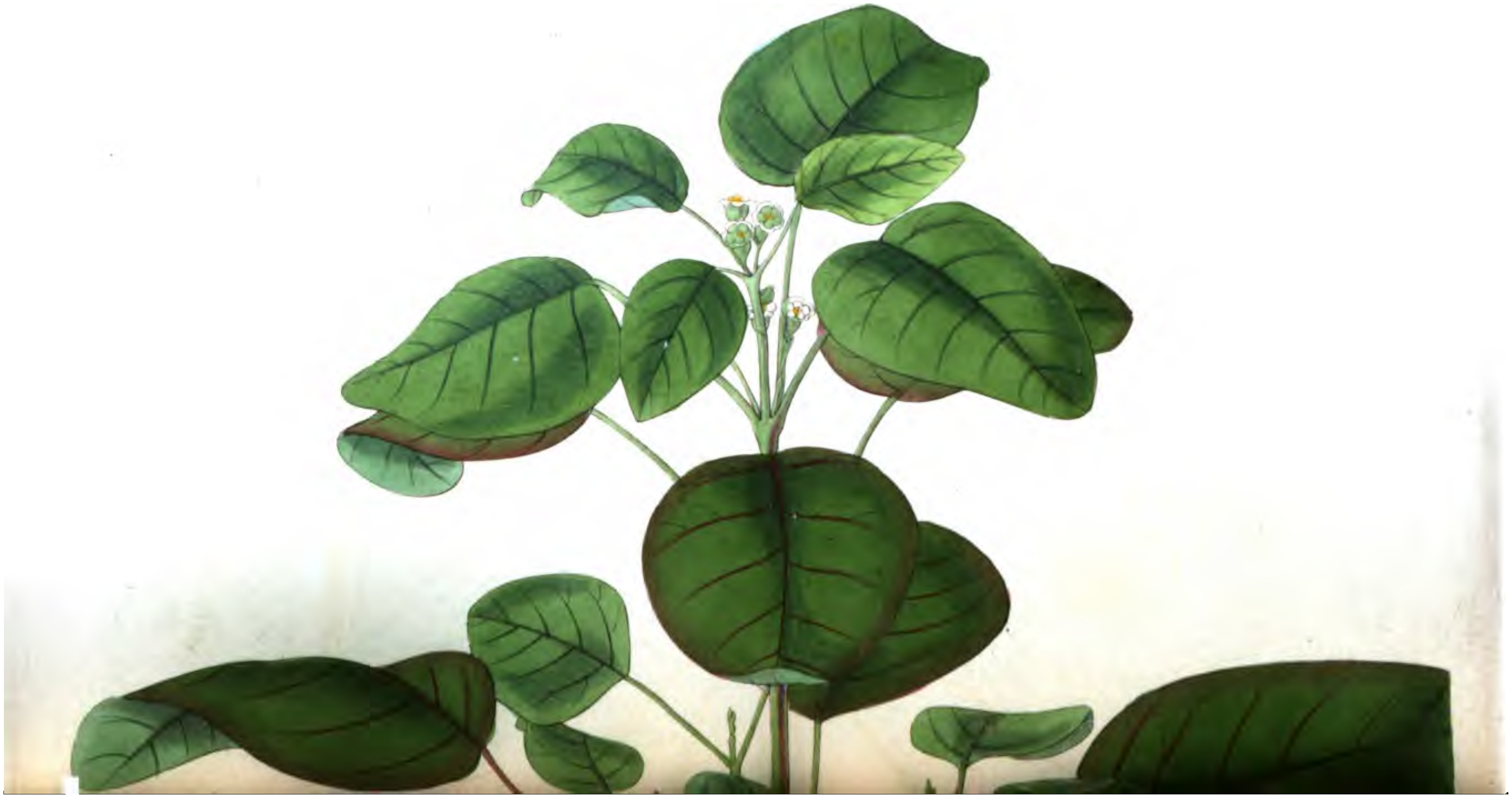
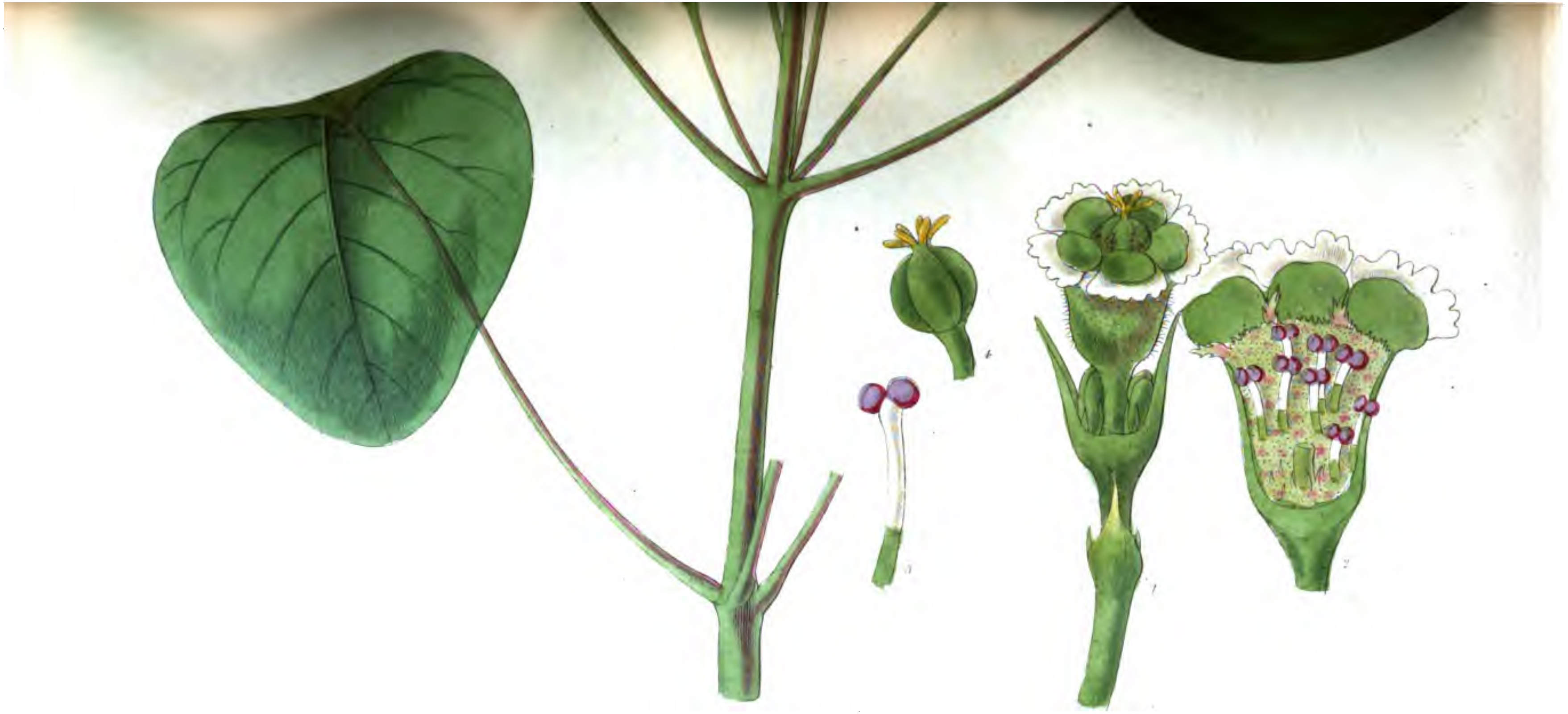




Euphorbia cotinifolia

EUPHORBIA COTINIFOLIA.

Shumac-leaved Spurge.

MONŒCIA MONANDRIA (DODECANDRIA TRIGYNIA, *Linn.*)—NAT. ORD. *EUPHORBIACEÆ, Juss.*

GEN. CHAR.—*Flores masculi* plurimi: *Fœmineus* unicus; plerumque in eodem involucro monophyllo, calyciformi, octo- vel decem-dentato. *Flores masculi* pedicellati, nudi. *Flos fœmineus* pedicellatus, nudus, perianthio instructus. *Styli* tres, bifidi. *Capsula* tricocca, coccis monospermis.

DIV. XXX. *Dichotomæ* (*Umbella bifida aut nulla*).—W.

Euphorbia *cotinifolia;* fruticosa inermis, foliis ternis longe petiolatis subrotundo-ovatis obtusis glabris, floribus terminalibus axillaribusque ternis.

E. cotinifolia, LINN. *Amœn. Acad.* v. iii. p. 112.—WILLD. *Sp. Pl.* v. ii. p. 892. —AIT. *Hort. Kew.* ed. 2. v. iii. p. 160.—HUMB. et KUNTH, *Nov. Gen.* v. ii. p. 46.

Tithymalus arboreus curassavicus, cotinifolio. SEBA, *Thes.* v. i. p. 75. t. 46. f. 4.

Stem shrubby; in our stoves 4 or 5 feet high, but, in its native country, attaining, according to HUMBOLDT, a height of 15 or 20 feet; abounding in a highly acrid, milky juice. *Branches* ternate, slender, flexible, purplish. *Leaves* ternate, placed upon slender footstalks, which exceed the leaves in length, rotundato-ovate, rounded, and very obtuse both at the base and at the extremity, resembling those of *Rhus Cotinus*, entire, soft and thin, veined, the young ones of a delicate green colour, the older ones partaking of a purple tint, but greener beneath.

Flowers rather small, growing in threes, either terminal, or from the axils of the leaves (one from each axil), pedicellated. The *pedicel* has, generally, 2 pairs of connate, acuminate bracteas, and, within these, abortive flowers (?) mixed with still smaller bracteas. *Involucre* cup-shaped, green, pubescent, bearing at its margins 5 spreading, white, petaloid, broadly cuneate processes, jagged at the margins, and having, at their bases, each a large, green, broadly ovate, notched *gland.* Alternating with the base of these glands, is an upright, toothed, small scale. The *involucre* is pubescent within, and includes several *male flowers*, each a single pedicellated stamen, with a white filament, and a reddish, rounded, didymous *Anther;* and one central pedicellated *female flower* or *Germen*, globular, obscurely 3-lobed; its *Style* very short; *Stigmas* 3, bipartite.

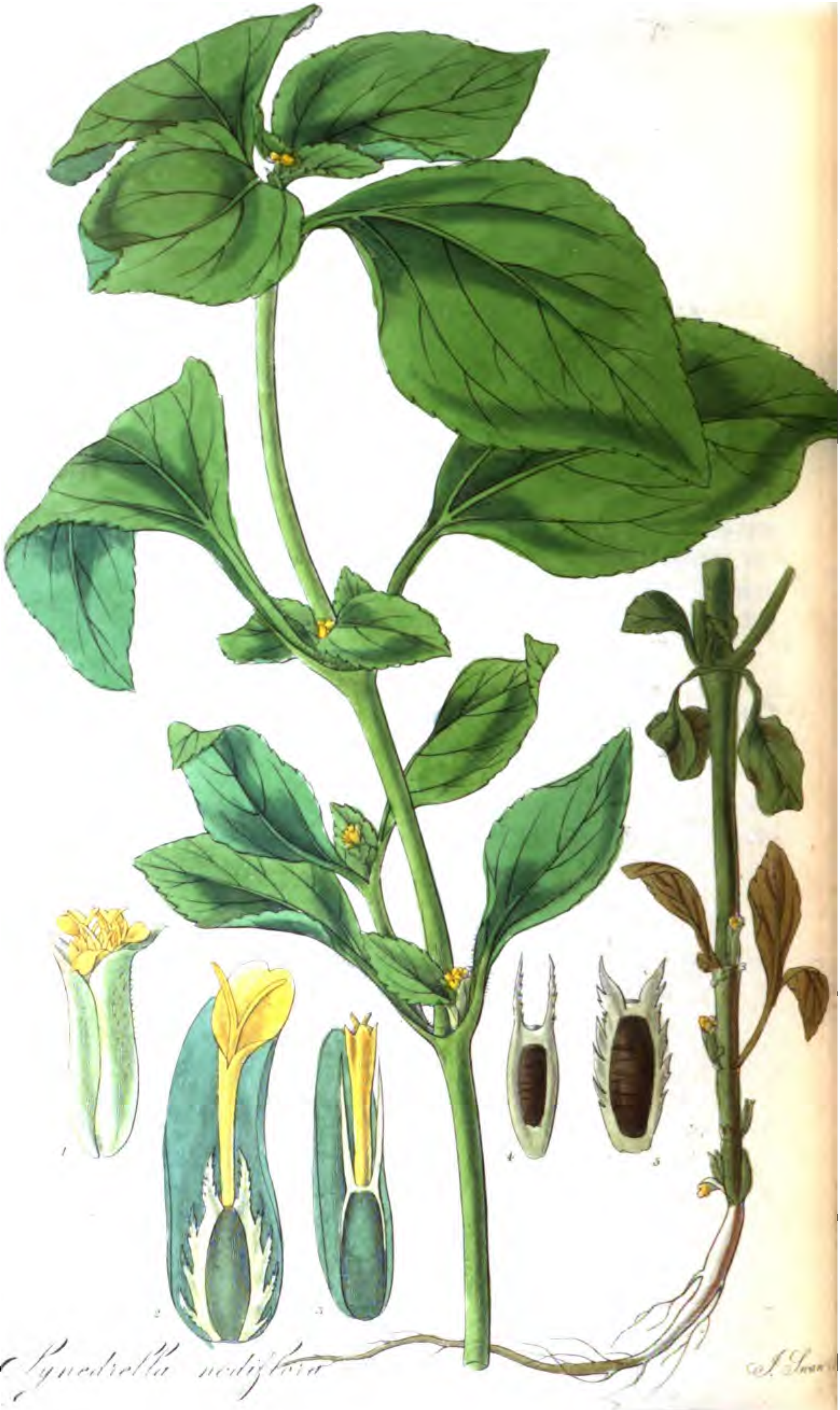
Although introduced into this country so long ago as 1690, by the Earl of Portland, the *Euphorbia cotinifolia* seems still to be a rare and little known inhabitant of our gardens; nor can I refer to any tolerably satisfactory figure of it, except the one in SEBA'S *Thesaurus;* drawn, however, avowedly, from a dried specimen. That author tells us, that the natives of Curassoa poison their darts with the milky juice of this tree, and thus render the wounds inflicted by them speedily mortal, on account of the violent inflammation which immediately ensues.

Most authors describe the leaves of this plant as being notched, which I do not, however, find to be the case; nor have its flowers ever been correctly described. Indeed, these would appear to be of rare occurrence, since so many authors have neglected to notice them, and since MM. HUMBOLDT and BONPLAND, who found this plant in woods near Cumana, Bordones and Caraccas, in South America, remark that they have not seen the blossoms.

Cultivated in the Botanic Garden of Glasgow, where it forms a graceful shrub, whose purplish foliage mingles well with the vivid green of its accompanying inhabitants of the bark-pit.

From a slight wound, or the rupture of one of its slender leaf-stalks, copious drops of the acrid juice flow out. It flowers in September.

Fig. 1. Peduncle and involucre. Fig. 2. Involucre cut open. Fig. 3. Male flower. Fig. 4. Female flower.—*All more or less magnified.*



Synedrella nodiflora

J. Swan

SYNEDRELLA NODIFLORA.

Sessile-flowered Synedrella.

SYNGENESIA POLYGAMIA SUPERFLUA.—NAT. ORD. *COMPOSITÆ*, DIV. CORYMBIFERÆ, *De Cand.*—SYNANTHEREÆ, *Trib.* HELIANTHEÆ, *Cassini.*

GEN. CHAR.—*Involucrum* diphyllum. *Receptaculum* paleaceum, glumaceum. *Semina* planiuscula, marginata, bicornia, dissimilia, *disci* marginibus integris, *radii* inciso-dentatis.

Synedrella *nodiflora.*

S. nodiflora, GÆRTN. *De Fruct.* p. 456. t. 171.—RICH. *in Pers. Syn.* v. ii. p. 472.

Verbesina nodiflora, LINN. *Sp. Pl.* p. 1271.—WILLD. *Sp. Pl.* v. iii. p. 2226. —AIT. *Hort. Kew.* ed. 2. v. 5. p. 121.

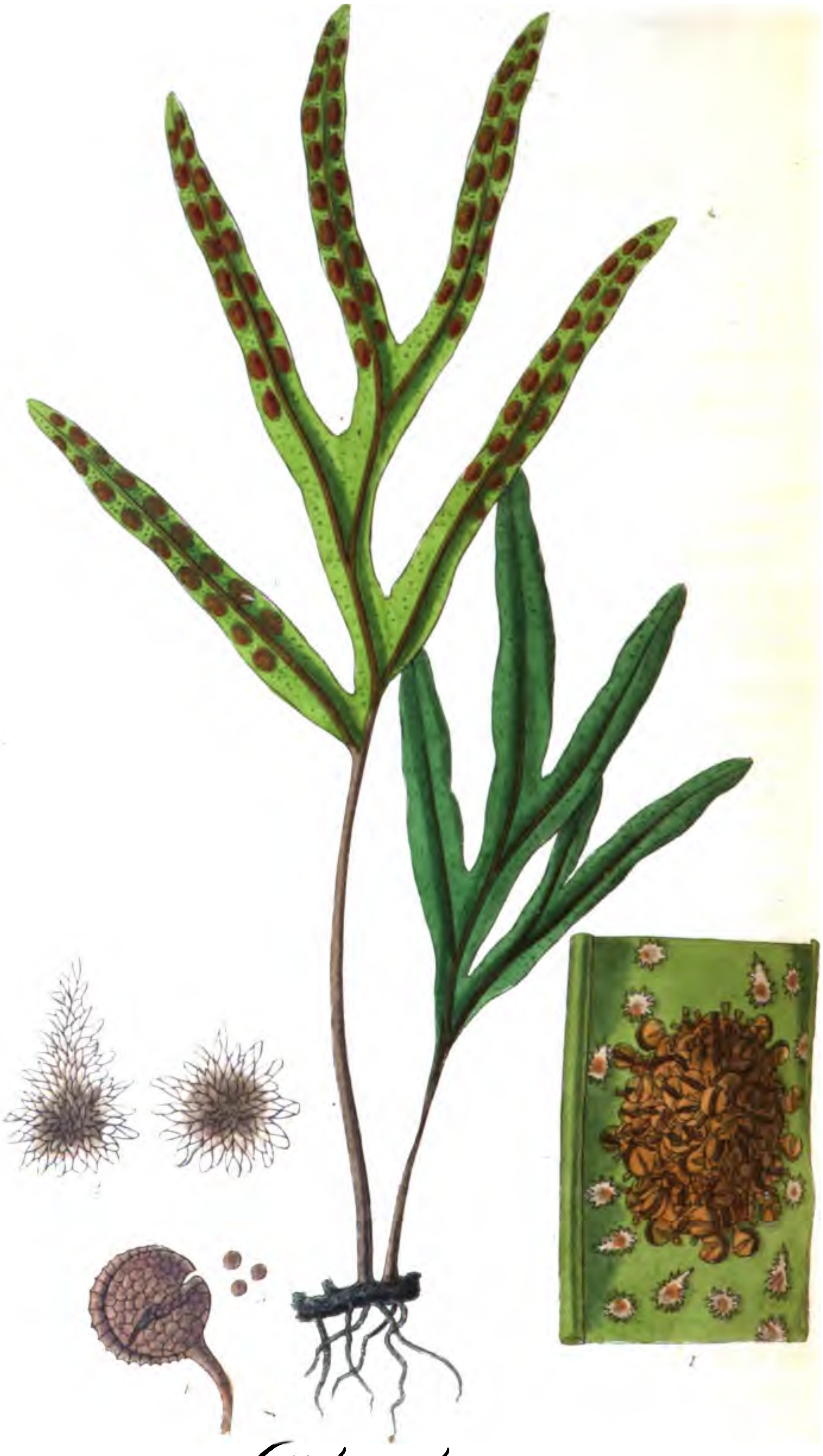
An unattractive, herbaceous annual, with a fibrous *root*, and a cylindrical, glabrous, succulent, erect *stem*, about one foot or one foot and a half high; often branched near the base, the branches opposite. *Leaves* in distant pairs, opposite, the upper ones the largest, 3 inches long, all ovate, rather acute, flaccid, roughish with pubescence, 3-nerved at the base, the margin serrated, the base attenuated into a longish footstalk, which is connate with the footstalk of the opposite leaf, and has its margins ciliated below.

Flowers axillary and terminal, sessile, single or 2 or 3 together, small. *Involucre* cylindrical, of 2 green, slightly hispid, erect leaflets, their extremities patent, acute. *Florets* few, yellow, each within a chaffy scale, of which the outermost ones are large, and like the leaflets of the involucre; the inner ones gradually smaller. *Florets of the ray* about 4, semiflosculose, scarcely longer than the involucres, tube slender, limb ovate, notched: *Stamens* none. *Germen* ovate, with a broad and laciniated border, and, in the place of a pappus, two acute, serrated, longish, lanceolate teeth. *Style* bifid. *Florets of the disk* tubular, with 4 pubescent teeth. *Anthers* brown. *Germen* ovato-oblong, margined, the margin entire, terminated by two very long, almost setaceous teeth, nearly equal in length to the Floret. The *seeds* or *pericarps* similar in shape to the Germen, but thicker, larger, and with the inner surface nearly plane and wrinkled, the outer one convex, smoothish.

This plant, cultivated in our gardens since 1726, was long considered as a *Verbesina*, but it differs from this genus both in its habit and fructification. Here the involucre is decidedly formed of 2 leaflets, each, indeed, inclosing a female flower, and the fruit is of two kinds, that of the exterior florets being larger than the others, and having the margins curiously laciniated. The receptacle has as many chaff-like scales as there are flowers, the outer one the largest, and gradually taking the form of the leaflets of the involucre. So that Gærtner, who established the genus *Synedrella*, considered the scales of the receptacle as an inner calyx or involucre. He was mistaken in supposing that there were only 2 ligulate female florets. I generally have observed 4 in each flower, and Dillenius describes 7 or 8; indeed, the inflorescence figured by the latter author in the *Hortus Elthamensis*, is far larger than any that has come under my observation.

We received the seeds of this plant from the West Indies, of which it is a native; and have cultivated it in the stove. The flowers appear in July and August, and the seed is plentifully produced, although some of the central tubular florets are frequently abortive.

Fig. 1. Involucre with its florets. Fig. 2. Female or ligulate floret, with its scale. Fig. 3. Tubular or central floret, with its scale. Fig. 4. Pericarp of a central tubular floret. Fig. 5. Pericarp of a female or ligulate floret.—*All more or less magnified.*



Pleopeltis angusta

F. Inav. A

PLEOPELTIS ANGUSTA.

Narrow-leaved scaly-Fern.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES*, DIV. GYRATÆ, *Br.*

GEN. CHAR.—*Sori* subrotundi, dorsales. *Involucra* plura in quolibet soro, orbicularia, peltata.—*Kunth, in Humb. et Bonpl. Nov. Gen.*

Pleopeltis *angusta*; frondibus longe stipitatis squamulosis profunde pinnatifidis, segmentis paucis lineari-lanceolatis nunc dichotomis, marginibus subrepandis.

Pleopeltis angusta, *Humb. et Kunth, in Nov. Gen.* p. 9. tab. 1.—WILLD. *Sp. Pl.* v. 5. p. 211.

Polypodium pleopeltifolium, RADDI, *Syn. Filic. Brazil.* p. 8.

Roots numerous, brown, thrown out from a creeping, cylindrical, scaly *caudex*. *Stipes* from 2 to 5 inches in length, glabrous. *Fronds* 3 or 4 inches high, deeply cut into about 5 long, narrow, linear-lanceolate, at the margins somewhat repand, rather obtuse, segments, the upper segment generally dichotomous. These have, both on their upper and under sides, numerous small, scattered, ovate, orbicular, peltate scales, dark in the centre, pale at the margins, and rather deeply cut, reticulated, membranaceous. The *rachis* or midrib is zig-zag, prominent, especially beneath.

The under sides of the segments, from the extremity to the base, have, on each side of the *midrib*, a row of closely placed, roundish-oval, prominent, brown *sori* or *spots of fructification*, of which I have not seen the *involucres;* but which latter are figured and described by HUMBOLDT, as similar to what I have represented as one of the scales at Fig. 3. "Indusia plura in quolibet soro, peltata, margine fimbriata, fusca."—*Humb.*

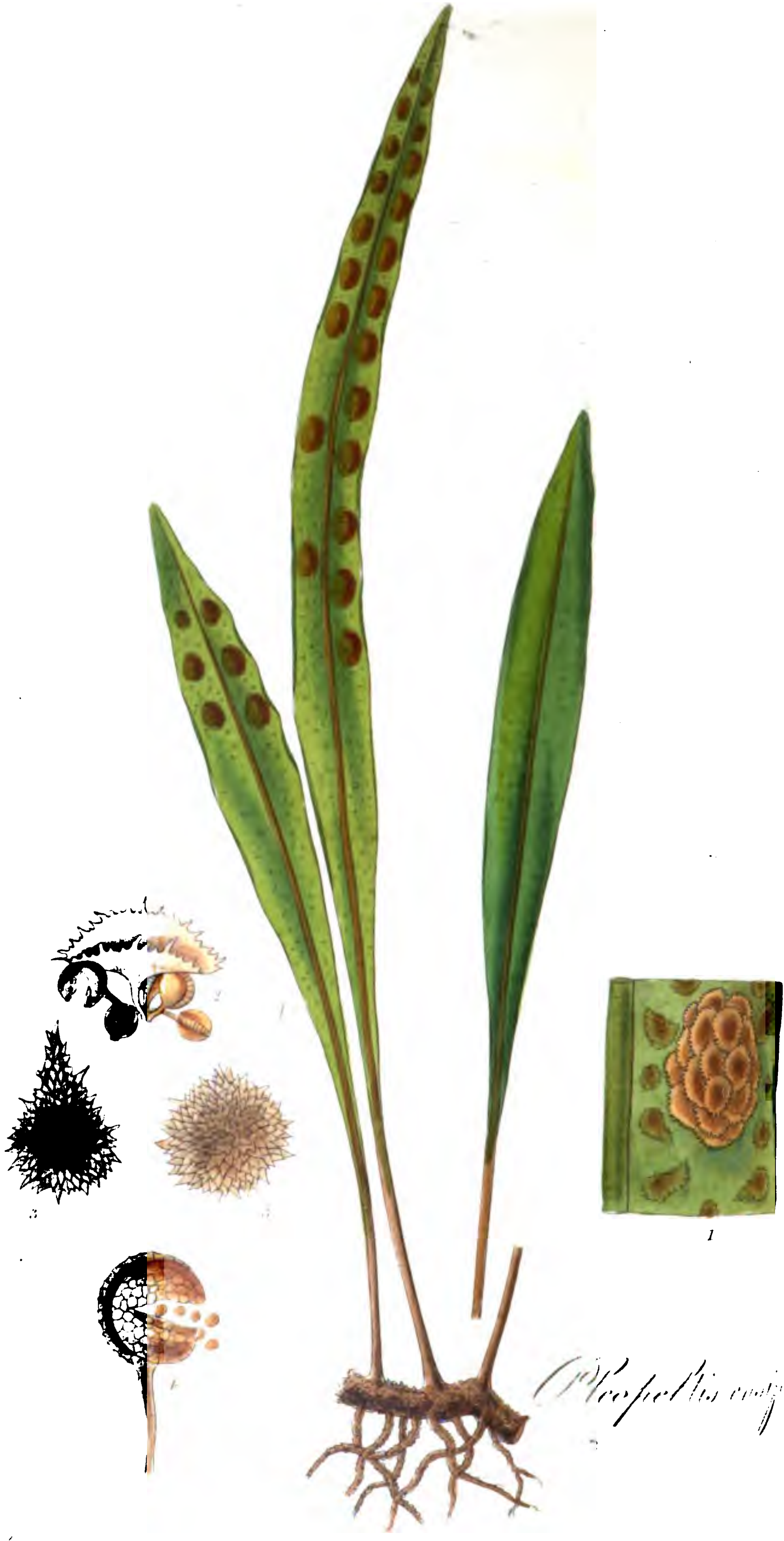
Capsules very numerous, brown, as well as the *seeds*.

If this be not a *Pleopeltis*, then is the genus not founded on Nature, for between the plant here figured, and the one represented under the same name (*P. angusta*), in HUMBOLDT'S grand work, there is no difference whatever, except in the absence of the involucres,—a circumstance which, I think, may be satisfactorily accounted for by the more advanced state of the fructification in the specimen now before us; for, as I have observed under *Pleopeltis ensifolia*, there is not a vestige of the involucres to be found upon the old sori or spots of fructification in that species.

My specimens were gathered upon old walls, in the neighbourhood of Rio de Janeiro, by Professor RADDI of Florence, who sent them to me under the name of *Pleopeltis angusta* of HUMBOLDT, but who was afterwards induced, from not finding the involucres, to refer the plant to *Polypodium*, with the appellation given in the above synonym; an alteration which, in my opinion, would not have taken place, had Professor RADDI been aware of the fugaceous nature of the involucres in other species of this genus.

This is the individual which gave rise to the generic character of *Pleopeltis;* and it was first discovered by MM. HUMBOLDT and BONPLAND, near Ario, in the Kingdom of Mexico, growing in shady places, at a height of 994 toises (about 6000 feet) above the level of the sea. Those authors observe, that its habit much resembles that of *Polypodium phymatodes.*

Fig. 1. Portion of the frond, with an old cluster of capsules, from which the involucres have disappeared, as well as many of the capsules themselves, the old stalks of which only remain. Fig. 2, 3. Scales of the frond. Fig. 4. Capsule. Fig. 5. Seeds.—*All more or less magnified.*



Pleopeltis

J. Swan Sculpt

PLEOPELTIS ENSIFOLIA.

Sword-leaved scaly-Fern.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES*, DIV. GYRATÆ, *Br.*

GEN. CHAR.—*Sori* subrotundi, dorsales. *Involucra* plura in quolibet soro, orbicularia, peltata.—*Kunth, in Humb. et Bonpl. Nov. Gen.*

Pleopeltis *ensifolia;* frondibus indivisis lanceolatis rigidis squamosis, basi in stipitem attenuatis.

Pleopeltis ensifolia, CARM. *MS.*

Caudex rather thick, creeping, covered with small brown scales, and throwing out numerous downy *roots,* principally from its under side.

Fronds many, 5 or 6 inches in length, lanceolate, more or less approaching to linear, attenuated at the base, and there terminating in a stipes about 2 inches high; the margin is slightly waved or repand, the anterior and posterior surfaces are alike beset with numerous minute, peltate, reticulated, membranaceous *scales,* some of which are orbicular, others ovate and very acute, the whole dark brown in the centre, paler towards the margin, and dentato-ciliate. The texture of the frond is rigid and coriaceous; a strong midrib or rachis passes through its centre, but there are no lateral nerves.

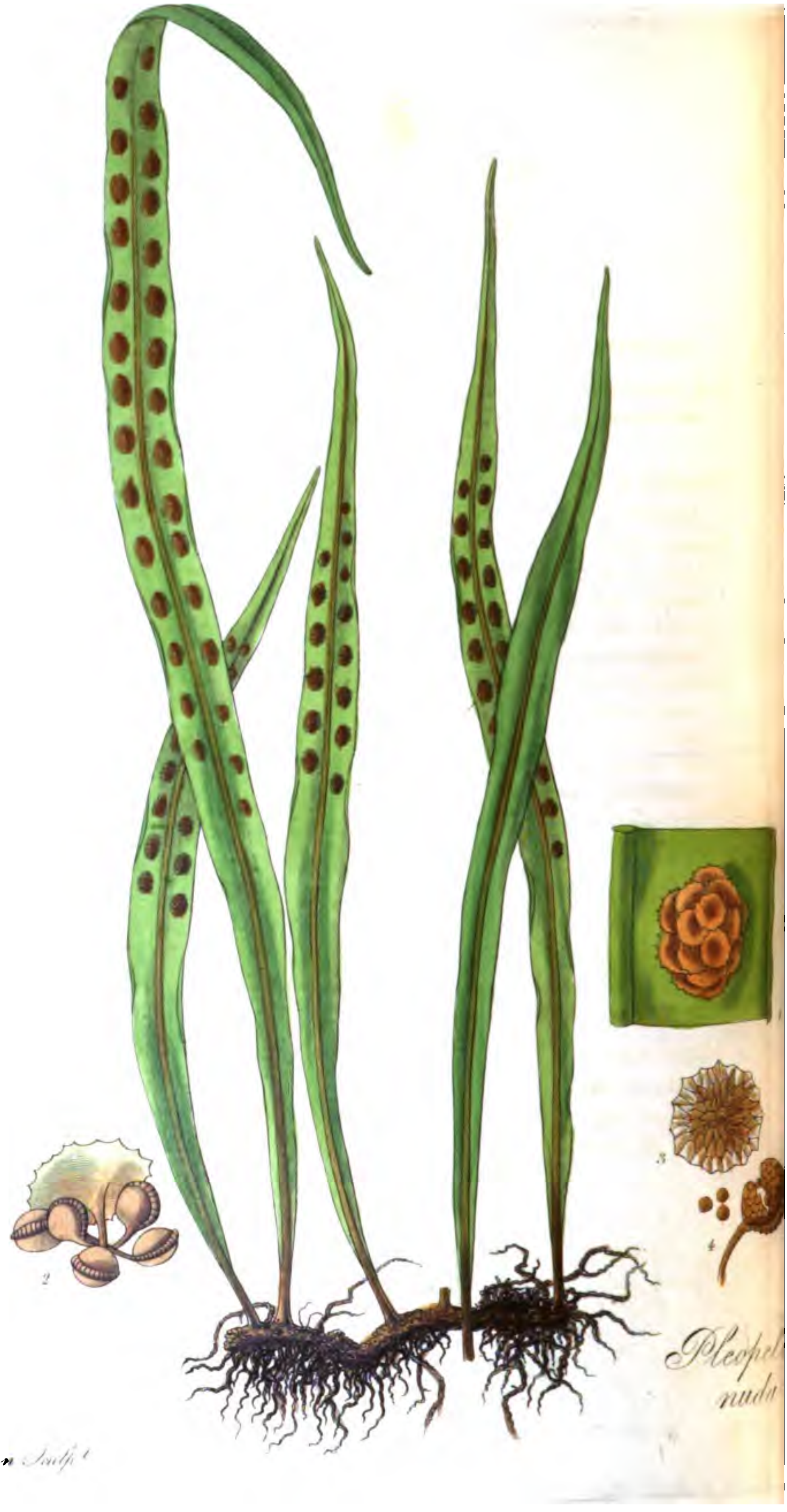
Sori or *spots of fructification,* confined to the upper surface of the frond, roundish or oval, at first nearly plane, afterwards remarkably prominent; in an early stage all the capsules are concealed by the numerous peltate *involucres* (Fig. 1.), which are similar in every respect to the scales just described upon the fronds, except that they are larger, uniformly orbicular, and their stalk is longer. In age, these involucres are either thrown off, or become so pressed and injured by the protrusion of the capsules as to be indiscernible, and then the plant assumes altogether the appearance of a *Polypodium.*

Capsules spherical, opening transversely, borne generally upon very long stalks. *Seeds* minute, reddish-brown.

The genus *Pleopeltis* was established by HUMBOLDT and BONPLAND, in their *Plantes Æquinoctiales,* and one species alone, *P. angusta*, a Mexican plant, has hitherto been described by authors. The present individual is a second species of *Pleopeltis*, which was gathered at the Cape of Good Hope, and communicated to me by Captain CARMICHAEL, F. L. S. of Appin, Argyleshire, a gentleman who has published an admirable account of the Island of Tristan d'Acunha, in the 12th volume of the Transactions of the Linnean Society, and who is unquestionably the ablest hydrophytologist we have in Scotland. A third species of this genus I have received from Dr WALLICH, and it is probable that others will yet appear, which have hitherto been confounded with *Polypodium*.

The generic appellation of *Pleopeltis* is derived from πλέω, *many*, and πελτη, a *scale*, in allusion to the numerous scales or involucres, which, collected over one cluster of fructification, distinguish it from *Aspidium*, in which, as is well known, the involucre is solitary. If, however, in the presence of scales, this genus comes nearest to *Aspidium*; its general habit is so similar to some of the *Polypodia*, that, with regard to the plant before us in particular, it is hardly possible to discriminate it from the *Polypodium lanceolatum* of WILLDENOW, except when it is examined in a young state. At a more advanced period, the involucres disappear; and, I may observe, that the resemblance is still more strengthened, by the circumstance of the fronds of *Polypodium lanceolatum* being equally beset with scales as those of our *Pleopeltis*.

Fig. 1. Portion of a frond, with its scales and involucres. Fig. 2. Single scale of the Involucre, covering its numerous Capsules. Figs. 3, 3. Scales of the Frond. Fig. 4. Capsule bursting, and discharging the seeds.—*All more or less magnified.*



Pleopelt
nuda

T. Swan Sculpt

PLEOPELTIS NUDA.

Glabrous scaly-Fern.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES*, DIV. GYRATÆ, *Br.*

GEN. CHAR.—*Sori* subrotundi, dorsales. *Involucra* plura in quolibet soro, orbicularia, peltata.—*Kunth, in Humb. et Bonpl. Nov. Gen.*

Pleopeltis *nuda;* frondibus indivisis lineari-lanceolatis rigidis nudis (squamulis nullis) basi apiceque attenuatis.

Caudex and *roots* as in *P. ensifolia.* *Fronds* numerous, from 6 to 10 inches high, linear-lanceolate, rigid, coriaceous, entire, slightly waved at the margin, the base attenuated into a very short stipes, scarcely more than half an inch in length, the extremity tapering gradually into a long narrow point, destitute of scales on both its sides.

Clusters of fructification forming a line on each side of the midrib, and generally reaching more than half-way down the frond, but not attaining nearly to its summit, roundish-oval, prominent even when covered with the involucres, and becoming remarkably so in age. *Involucres* numerous, small, membranaceous, reticulated, peltate, their margins bluntly toothed, dark brown, paler at the edges.

Capsules and *seeds* similar to those of *P. ensifolia.*

An inhabitant of Nepaul, communicated to me thence by my valued friend Dr WALLICH, and unquestionably much allied to *Pleopeltis ensifolia,* differing from it, however, in its longer, narrower, and, at the extremity, singularly attenuated, fronds; which are quite destitute of scales in all stages of growth, and have their involucres much smaller, of a darker colour, and never ciliated, but bluntly toothed at the margins.

Fig. 1. Portion of a frond, with a cluster of Involucres. Fig. 2. Under side of the scale of an involucre, with its capsules. Fig. 3. Upper side of an involucre. Fig. 4. Capsule and seeds.—*All more or less magnified.*

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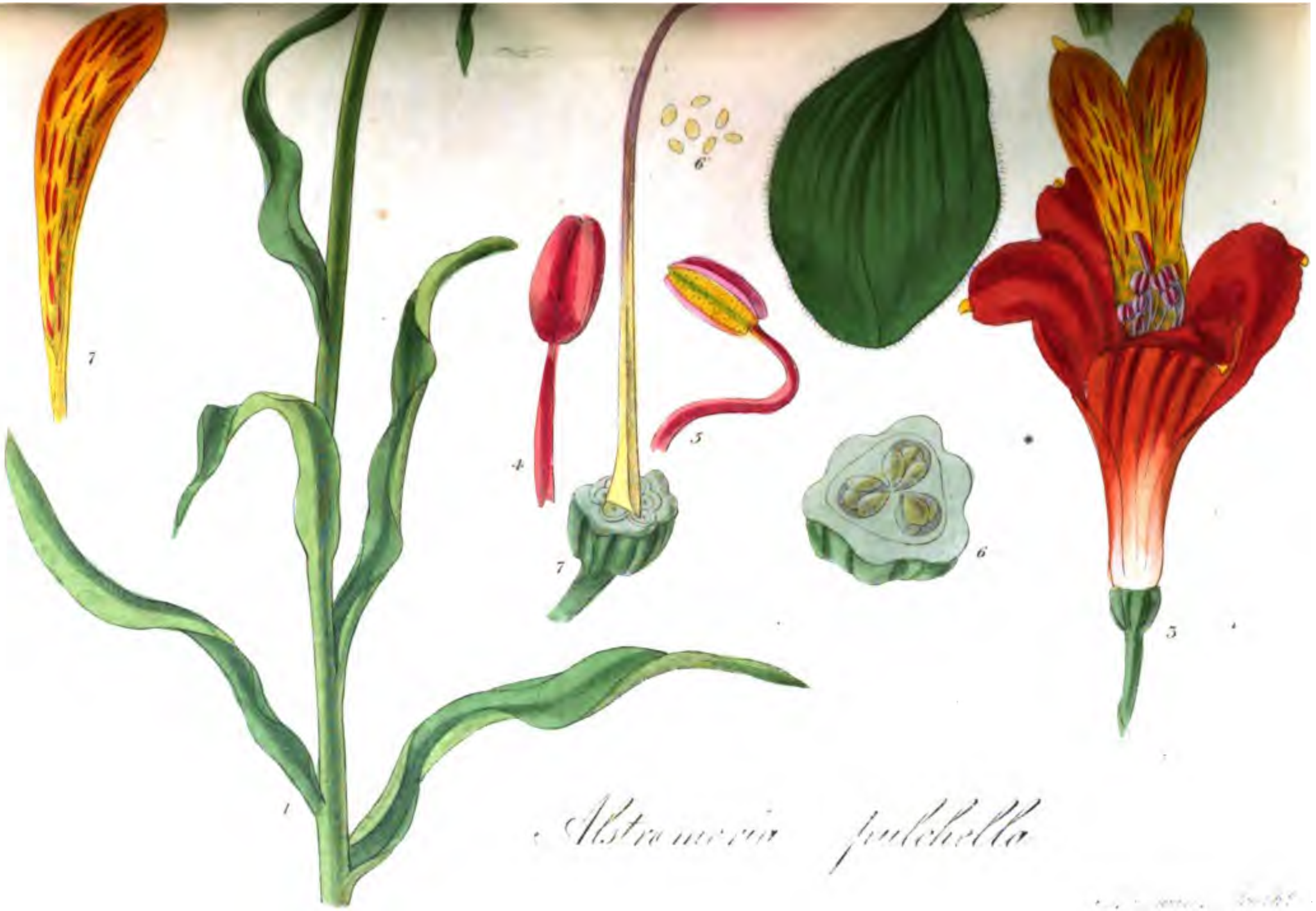


Alstromeria pulchella

64

ALSTRŒMERIA PULCHELLA.

Red speckled-flowered Alstrœmeria.

HEXANDRIA MONOGYNIA.—NAT. ORD. AMARYLLIDEÆ, *Br.*, *Kunth.* —NARCISSI, DIV. III. *Genera Narcissa non omnino affinia.—Juss.*

GEN. CHAR.—*Perianthium* corollaceum subcampanulaceum, sexpartitum, irregulare; laciniis duabus interioribus basi tubuloso-conniventibus. *Stamina* sex, laciniis inserta, demum declinata. *Stigma* trifidum. *Capsula* trilocularis, loculis polyspermis. *Caulis erectus, scandens aut volubilis, foliatis. Flores umbellati.—Kunth.*

Alstrœmeria *pulchella;* caule erecto gracili, foliis obovato-spathulatis lanceolatisque ciliatis, umbella multiflora, pedunculis bifloris, perianthii laciniis quatuor exterioribus obovato-spathulatis æqualibus serratis, duabus interioribus longioribus lineari-spathulatis integerrimis.

Alstrœmeria pulchella, *Bot. Mag.* t. 2353. (vix LINN.)

Stem erect, scarcely climbing, slender, weak, between two and three feet high, simple, cylindrical, glabrous, subglaucous. *Leaves* scattered, distant, those of the barren stems and the lower ones on the fertile stems broadly obovate, spathulate, submembranaceous, the lower petioliform part tortuose, striated, subglaucous, the margin ciliated; the superior ones on the upper part of the fertile stem are lanceolate, more or less convolute and twisted.

Umbel of about six rays, each of them 2-flowered. *Flowers* large, showy, and very beautiful. *Pedicels* about an inch long, and, as well as the peduncles, glabrous, somewhat glaucous, each subtended by a large contorted leaf-like bractea, which, taken collectively at the base of the umbel, form an involucre. The four exterior segments or leaflets of the perianth nearly equal, obovato-spathulate, erect at the base, spreading at the extremity, and there serrated at the margin, the point having a callous appendage; their color a brilliant orange-scarlet; the two inner segments differ remarkably from the exterior ones, being nearly half as long again, erect, linear-spathulate, bright yellow-scarlet at the extremity, and entire, streaked throughout their whole length with dashes of deep scarlet. *Stamens* 6, inserted upon the receptacle. *Filaments* at first nearly straight, pale purplish, at length declined, their extremities incurved. *Anthers* oblong, 2-celled, reddish-purple. *Pollen* yellowish.

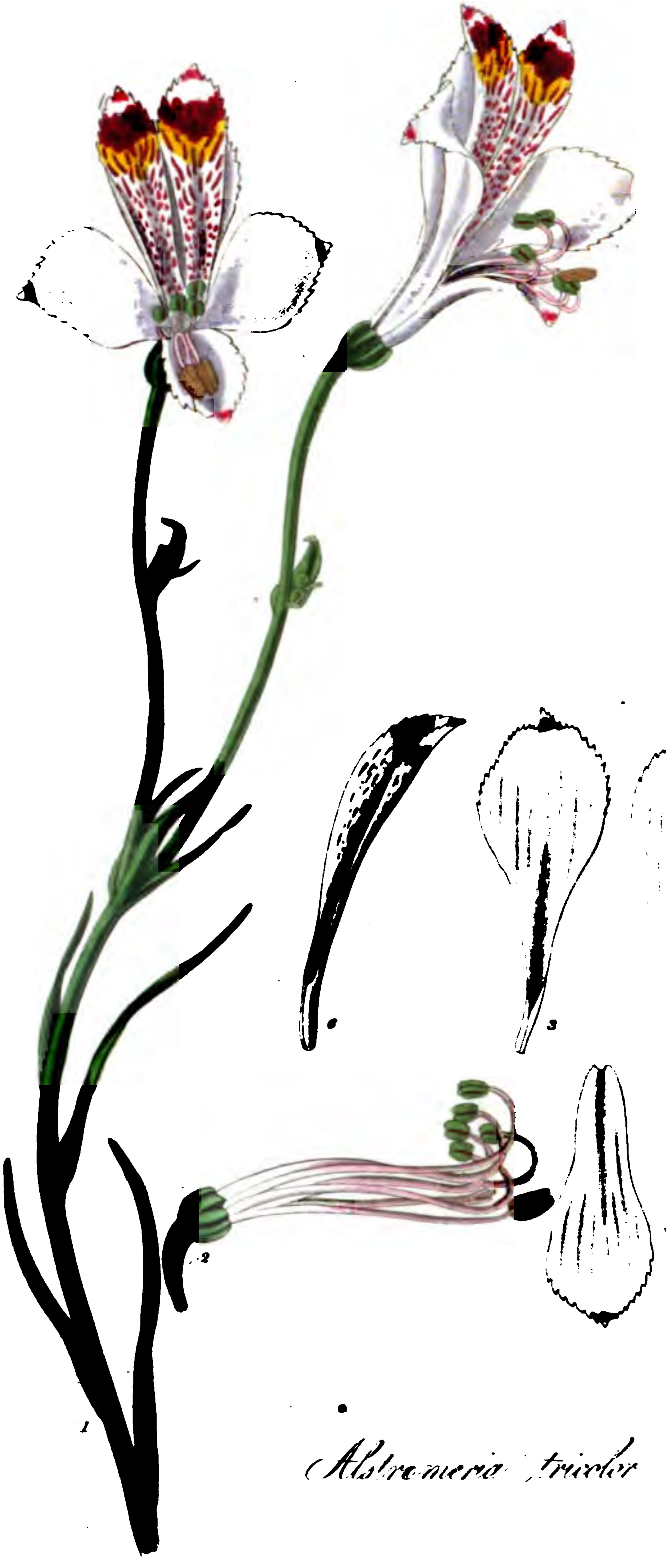
Germen somewhat triangular, with six prominent ridges, corresponding with the number of segments of the perianth. *Style* subulato-filiform, longer than the stamens, triangular at the base and white, purple above, terminated by three linear *Stigmas*.

Of this splendid species, seeds were received at our Botanic Garden during the year 1822 from Chili, of which country it is a native, and where they were collected by our valuable correspondent Mr CRUIKSHANKS. In the summer of 1823, they blossomed in our stove, being planted in common soil, and plunged in the tanpit, where they continued for more than a week in great perfection.

I had in vain searched through the descriptions of the several individuals belonging to this genus, both in HUMBOLDT and KUNTH's Nova Genera, and in PERSOON's Synopsis, without being able satisfactorily to refer it to any of them, when I ascertained that it was figured and described by Dr SIMS in No. 429. of the Bot. Mag. under the name of *Alstr. pulchella*, although not well according with the character of LINNÆUS's *pulchella*, a species which indeed no one seems to understand, and which appears to be discarded from the Flora. I readily therefore follow Dr SIMS in the adoption of his specific name. It is remarked by that excellent author, that this plant is almost without a doubt the original *Ligtu* of Father FEUILLÉE in the Fl. Peruv., although LINNÆUS quoted that as a synonym and applied the name to a different species; and that any attempt to restore the original name would only create more confusion.

The figure in the Botanical Magazine is professedly taken from a weak specimen, which will account for the difference in our two figures.

Fig. 1. Summit of a flowering plant, *natural size*. Fig. 2. Leaves of a sterile stem, or those of the lower part of a fertile one. Fig. 3. Single flower, *slightly magnified*. Fig. 4. Summit of a stamen. Fig. 5. Anther in the act of bursting. Fig. 6. Pollen. Fig. 7. One of the two inner segments of the perianth, exhibiting its convolute base, which circumstance forms one of the characters of the genus.



Alstromeria tricolor

Swan Sculpt Glasgow

65

ALSTRŒMERIA TRICOLOR.

Tricolored Alstrœmeria.

HEXANDRIA MONOGYNIA.—NAT. ORD. AMARYLLIDEÆ, *Br. Kunth.* —NARCISSI, DIV. III. *Genera Narcissi non omnino affinia.—Juss.*

GEN. CHAR.—*Perianthium* corollaceum, subcampanulaceum, sexpartitum, irregulare; laciniis duabus interioribus basi tubuloso-conniventibus. *Stamina* sex, laciniis inserta, demum declinata. *Stigma* trifidum. *Capsula* trilocularis, loculis polyspermis. *Caulis erectus, scandens aut volubilis, foliatis. Flores umbellati.—Kunth.*

Alstrœmeria *tricolor;* caule erecto gracili foliis lineari-lanceolatis tortis glabris, umbella pauciflora (?) perianthii laciniis quatuor exterioribus obovato-spathulatis subconformibus brevioribus, duabus interioribus, paulo longioribus lineari-spathulatis omnibus serratis.

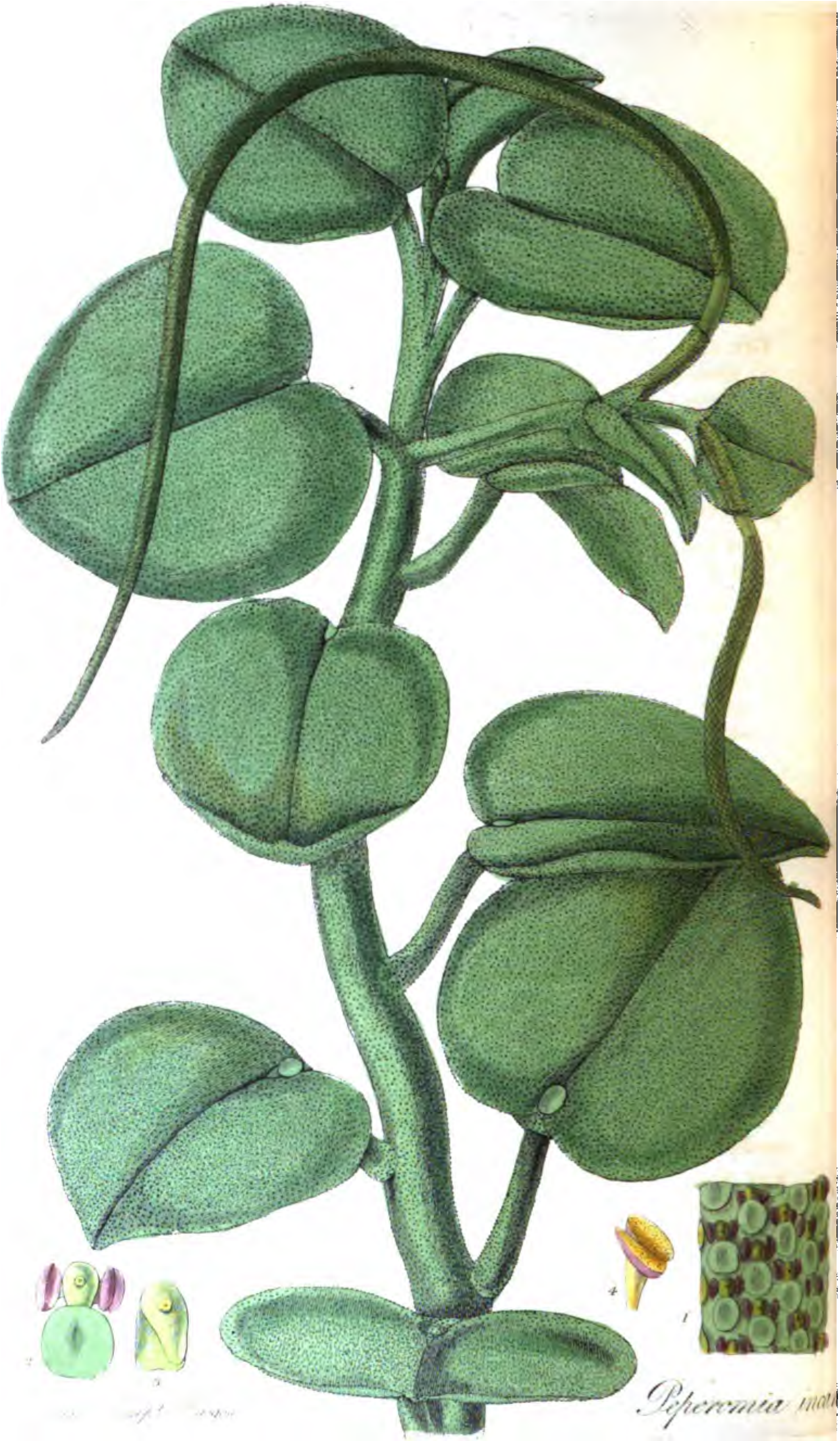
Stem erect, simple, slender, glabrous, in our specimens a foot high, having a few distantly placed, lineari-lanceolate, glabrous, twisted *leaves,* which scarcely exceed two inches in length, their margins quite destitute of ciliæ.

Umbel few-flowered, having at the base a three-leaved involucre, of which the leaflets resemble the cauline leaves, only that they are somewhat smaller. *Flowers* large in proportion to the size of the plant, handsome. *Perianth* of 6 leaflets, of which the four exterior ones are equal in size and nearly so in shape, obovato-spathulate, serrated at the extremity, pure white, with a deep spot of purple at the tip, just below the small white callous point: at the base these leaflets are connivent and erect, their apices spreading and even recurved: the two inner leaflets are somewhat longer than the outer ones, erect, linear-spathulate, serrated at the tips, slightly carinated, white, with a purple jagged and broad band near the summit, and a yellow one beneath it; the extreme apex is likewise purple, and there are several lines of the same color as the yellow band, pointing downwards, and numerous smaller spots on all the lower parts. *Stamens* as in *A. pulchella,* but with the *pollen* greenish. *Pistil* and *Style* as in *A. pulchella;* but the latter part shorter than the stamens.

Another beautiful species of *Alstrœmeria* is here represented, which flowered in the stove of our Botanic Garden at the same time with, and was derived from the same source as, the *Alstrœmeria pulchella*; the native place of growth of both being Chili, whence their seeds were sent to us by Mr Cruikshanks. The present plant was unfortunately a weak one, and in all probability the umbel would have had a very different appearance, if the individual had been more vigorous. I am quite at a loss to refer it to any described species, and have therefore affixed to it a name indicative of the three distinct colors of its perianth.

The general structure of the inflorescence is very similar to that of *A. pulchella*, but the color is widely different, and it has all the segments of its perianth equally serrated, with the two inner ones short in proportion to the outer ones, and the lowermost of these latter smaller than the other.

Fig. 1. Summit of a plant, *natural size*. Fig. 2. Flower deprived of its perianth. Fig. 3. Superior leaflet of the perianth. Fig. 4. One of the lateral leaflets. Fig. 5. Inferior ditto. Fig. 6. One of the inner leaflets,—*slightly magnified*.



Peperomia ma

PEPEROMIA INCANA.

Hoary Peperomia.

DIANDRIA MONOGYNIA.—NAT. ORD. *PIPERACEÆ, Humb. et Kunth.*

GEN. CHAR.—Spadix cylindraceus, floribus undique tectus. *Flores* hermaphroditi, singulus squama suffultus. *Stamina* duo. *Antheræ* uniloculares. *Stigma* indivisum. *Bacca* monosperma.—*Kunth.*

Peperomia *incana;* incano-tomentosa, foliis alternis cordato-rotundatis acutiusculis carnosis petiolatis, inferioribus subpeltatis, spadicibus terminalibus subsolitariis longissimis.

Piper incanum, HAW. *Suppl. Pl. Succ.* p. 2.—LINK et OTTO, *Fl. Berol.* v. i. p. 17. t. 7.

Stem erect, a foot or more in height, erect, simple or slightly branched, thick, fleshy, very downy. *Leaves* alternate, rather distant, from two to three inches long, thick, fleshy, rotundato-cordate, subacute, downy on both sides, especially on the upper surface, where it is of a darker green, and nerveless, below paler, and furnished with a prominent midrib and a few obscure oblique lateral nerves, petiolate, the petioles an inch or an inch and a half long, thick, fleshy, downy, terete, flattened only above, the superior ones inserted into an obtuse short sinus at the base, the lower ones inserted just a little within the margin at the base, where the margin is slightly protruded, and the leaf is hence, in a measure, peltate.

Spadices one or two at the extremity of the stem or branch, when fully grown from 6 to 8 inches in length, tortuose, cylindrical, attenuated towards the extremity: the florets very thickly crowded. *Scales* subquadrate, peltate, green. *Germen* placed almost entirely above the scale, small, subovate, plane above. *Stigma* minute, sessile. *Stamen* one on each side of the germen. *Anther* nearly of the same size with the germen, oblong, purple, 1-celled. *Filament* attenuated at the base.

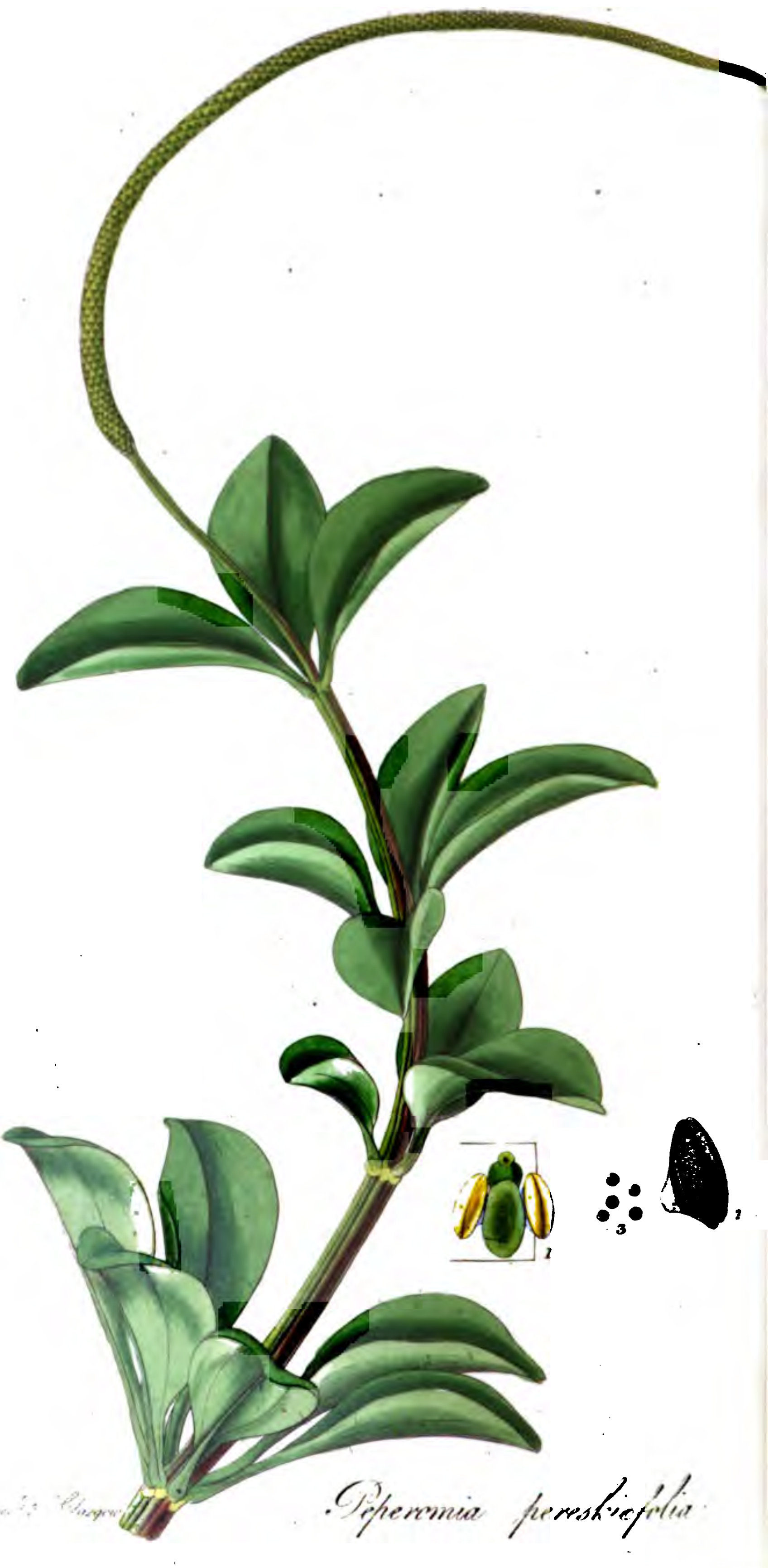
An interesting species, and admirably distinguished by its cordate, thick, fleshy, remarkably downy and hoary leaves. It was first described by Mr HAWORTH, who stated it be a native of Brazil, and mentioned that it had flowered in Kew Garden in the year 1815. From that valuable establishment it probably has, by the liberality of Mr AITON, been distributed to other gardens, and it now is not uncommon in collections.

It blossomed in the month of May in the Liverpool Gardens, from whence our flowering specimen was received.

Mr HAWORTH considers this *Peperomia* as allied to the *P. velutinum* of HUMBOLDT and KUNTH, v. i. p. 43.; but that plant, besides being arranged among the true species of the genus *Piper*, is stated to be a tree of 30 feet in height, with its leaves ovato-oblong, acuminate, and unequally rounded at the base, and with spadices only half the length of its leaves.

P. incana succeeds well if cultivated in the stove, and treated as the other species of the genus.

Fig. 1. Portion of the spadix, with its florets. Fig. 2. Single floret with the scale. Fig. 3. Germen. Fig. 4. Stamen.—*All more or less magnified.*



Peperomia pereskiaefolia

PEPEROMIA PERESKIÆFOLIA.

Pereskia-leaved Peperomia.

DIANDRIA MONOGYNIA.—NAT. ORD. *PIPERACEÆ*, *Humb. et Kunth.*

GEN. CHAR.—*Spadix* cylindraceus, floribus undique tectus. *Flores* hermaphroditi, singulus squama suffultus. *Stamina* duo. *Antheræ* uniloculares. *Stigma* indivisum. *Bacca* monosperma.—*Kunth.*

Peperomia *pereskiæfolia*; caule erectiusculo, foliis ter senisque obovatis acutis petiolatis trinerviis carnosis glabris, spadice terminali solitario.

P. pereskiæfolia, KUNTH, *Syn. Pl. Æquin. Orb. Nov.* v. i. p. 120.—HUMB. et KUNTH, *Nov. Gen. et Sp.* v. i. p. 56.

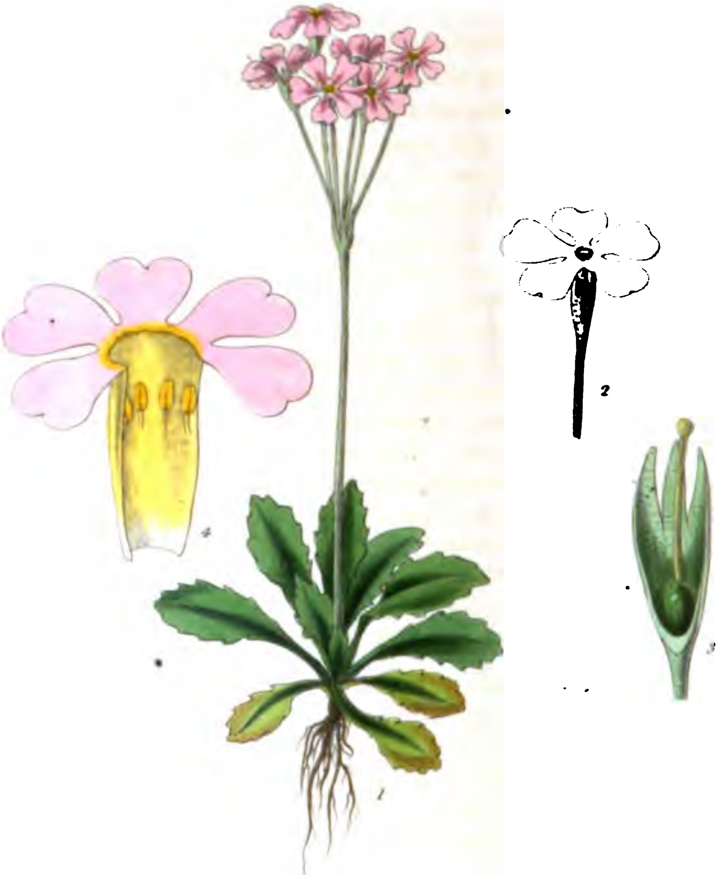
Piper pereskiæfolium, JACQ. *Coll.* v. iv. p. 352.—*Ic. Rar.* v. ii. t. 212.—WILLD. *Sp. Pl.* v. i. p. 167.—VAHL, *Enum.* v. i. p. 352.—RŒM. et SCHULTZ, v. i. p. 329.—HAW. *Saxifr. Enum.* &c. (1821) P. II. p. 3.

Stems a foot or more in height, nearly erect, di- or trichotomously branched, striated, brownish-green, succulent, throwing out the rudiments of roots at the insertion of the leaves. *Leaves* two or three inches long, verticillate, from three to six in a whorl, obovate, acute, carnose, glabrous and dark green above, below paler and three-nerved; the base running down into a footstalk, which is about half as long as the lamina.

Spadix five or six inches in length, pedunculate. *Peduncles* cylindrical, glabrous. *Florets* numerous, but not very closely placed. *Scale* peltate, ovato-elliptical. *Anther* oblong, yellow, tapering down into a very short footstalk. *Pollen* white, minute, spherical. *Germen* small, obovate. *Stigma* minute, appearing glandular when viewed under the microscope.

JACQUIN first described this species of *Peperomia*, as an inhabitant of the island of Venezuela, and HUMBOLDT afterwards as being frequent near Caraccas and Cumana in South America, both in hot (calidis) and in temperate situations, at an elevation of between 30 and 300 toises, flowering in January and September. In our stoves it blossoms in the month of May, and it was at that season that the plant here figured was sent from the Liverpool Botanic Garden.

Fig. 1. Single flower. Fig. 2. Stamen. Fig. 3. Pollen.—*More or less magnified.*



Primula pusilla

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PRIMULA PUSILLA.

Lesser Bird's-eye Primrose.

PENTANDRIA MONOGYNIA.—NAT. ORD. *PRIMULACEÆ.*

GEN. CHAR.—*Cal.* 5-dentatus. *Cor.* hypocrateriformis tubo cylindrico, fauce pervia. *Stigma* capitatum. *Capsula* unilocularis, decem-dentata.

Primula *pusilla;* foliis obovato-spathulatis repando-dentatis, subtus scapoque farinosis, umbella pauciflora, corollæ tubo calyce longiore, laciniis obcordatis dentatis, ore nudo.

P. pusilla, GOLDIE, *in Edin. Phil. Journ.* for 1822, v. vi. p. 322.

P. farinosa, NUTT. *Gen. of Amer. Pl.* v. i. p. 119.—" MÜHLENBERG'S *Cat. of N. Amer. Pl.* ?"—SILLIMAN'S *Journ.* v. iv. p. 59.

Root perennial, fibrous. *Leaves* radical, obovato-spathulate, the margins repando-dentate, their upper surface green, scarcely at all farinose; the under one more or less mealy.

Scape from two to four inches high, erect, mealy. *Umbel* of from four to eight farinose rays or peduncles, which are erect, slender, above an inch in height, at the base furnished with an involucre of about four minute lanceolato-subulate leaflets. *Calyx* nearly oblong, of five rather longish, erect teeth, patent when dry. *Tube of the corolla* longer than the calyx, cylindrical, yellow; *Limb* of five obcordate, patent, flesh-coloured segments. The mouth is deep yellow, destitute of teeth-like processes. *Stamens* five, inserted into the tube, sometimes having the anthers reaching to the summit, at other times are wholly included within the tube. *Germen* roundish, glabrous. *Style* filiform, rather shorter than the tube of the corolla. *Stigma* capitate, yellow.

Primula pusilla is a species first characterised by Mr GOLDIE, in a memoir on some new and rare Canadian Plants, which was inserted by him in the 6th volume of the *Edinburgh Philosophical Journal,* and the species is there distinguished from the *P. farinosa* of our own country, and from the *P. mistassinica* of Lake Mistassins in America. From the former, it may be known by the decidedly spathulate and almost stalked leaves, their far more distinctly toothed margins, and nearly naked upper surface. The limb of the corolla, too, has broader segments, and these are of a much paler color. The same characters, nearly, in the leaves, will serve to distinguish the *P. pusilla* from *P. scotica;* and with respect to the flowers, besides their different color and form, those of the present plant have not the teeth at the mouth of the corolla, which are so evident in the *P. scotica.*

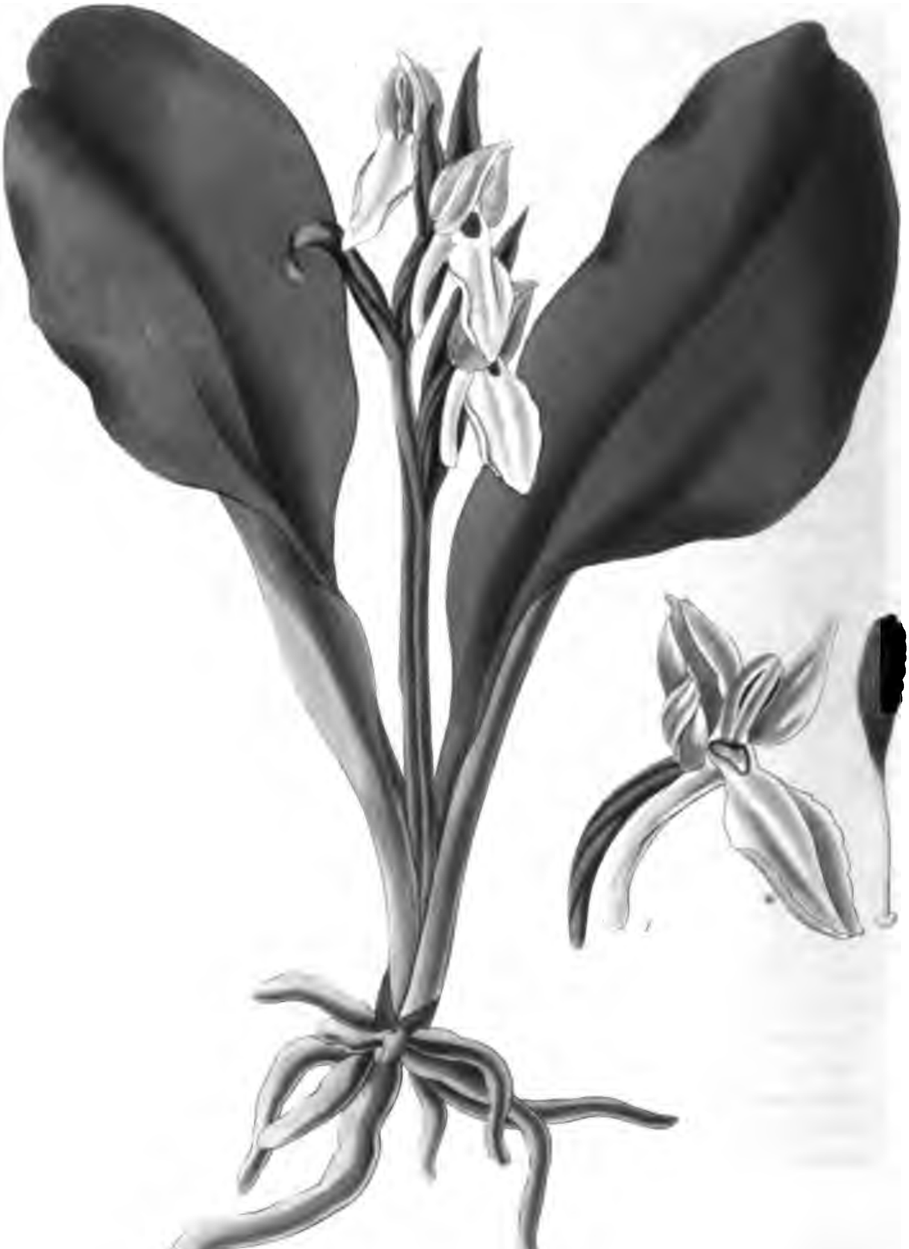
From the *P. mistassinica,* it may be more difficult to define this species: if, however, what is stated by MICHAUX concerning the former be correct, namely, that the whole plant is glabrous (by which I presume that he means destitute of farina), and that the limb of the corolla is reflexed, there are surely enough of differences between them. PURSH was unacquainted with *P. mistassinica;* but LEHMANN, who describes and figures it from a specimen communicated to him by JUSSIEU, retains all the characters laid down by MICHAUX. That delineation represents the leaves as considerably different from those of our plant, inasmuch as the lamina or broad part of the leaf is nearly rhomboidal, toothed only in the upper half.

Soon after the publication of the memoir above alluded to, Dr TORRY of New York did me the favour to write to me some remarks on the species of American plants described by Mr GOLDIE in that paper. He observes, that the description of *P. pusilla* exactly agrees with specimens of a Primrose collected by Captain DOUGLASS on the shores of Lake Huron, and that he considers it as the *P. farinosa,* (see Silliman's Journal, v. iv. p. 50.). Mr NUTTALL, he says, found the plant in the same place (consequently it is the *P. farinosa* of the *Genera of North American Plants*), and that in MUHLENBERG's Catalogue, the *P. farinosa* is stated to be a native of Canada.

The accompanying figure was taken from a living specimen which had been sent from Canada by Mr KIPPIN in the autumn of 1822, and being kept in its native soil, a loamy peat, in a large box, and placed under a common frame, it flowered well in the May following. It is rather larger than the wild specimens found by Mr GOLDIE near Montreal, and considerably more so than the specimen figured in the *Edinburgh Philosophical Journal.*

The first living plants of this Primula were introduced into our collections by Mr GOLDIE in 1819, and they flowered both in his garden at Ayr, and in that of P. NEILL, Esq. near Edinburgh, in 1821.

Fig. 1. Cultivated specimens of *P. pusilla, natural size.* Fig. 2. Single flower. Fig. 3. Calyx cut open, to shew the pistil. Fig. 4. Corolla, with the tube laid open,—*More or less magnified.*



Orchis spectabilis

ORCHIS SPECTABILIS.

Showy American Orchis.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

GEN. CHAR.—*Corolla* ringens. *Labellum* basi subtus calcaratum. *Glandulæ* (1-2) pedicellorum pollinis inclusæ cucullo unico.—*Br.*

Orchis *spectabilis*; radicibus fasciculatis labello ovato indiviso crenato obtuso, petalis conniventibus, cornu compresso clavato germine breviore, bracteis flore longioribus, caule aphyllo.

O. spectabilis, LINN. *Sp. Pl.* p. 1337.—WILLD. *Sp. Pl.* v. iv. p. 36.—PURSH, *Fl. Amer. Sept.* v. ii. p. 587.—BROWN, *in Hort. Kew.* ed. 2. v. 5. p. 190.

O. humilis, MICH. *Fl. Amer.* v. ii. p. 155.

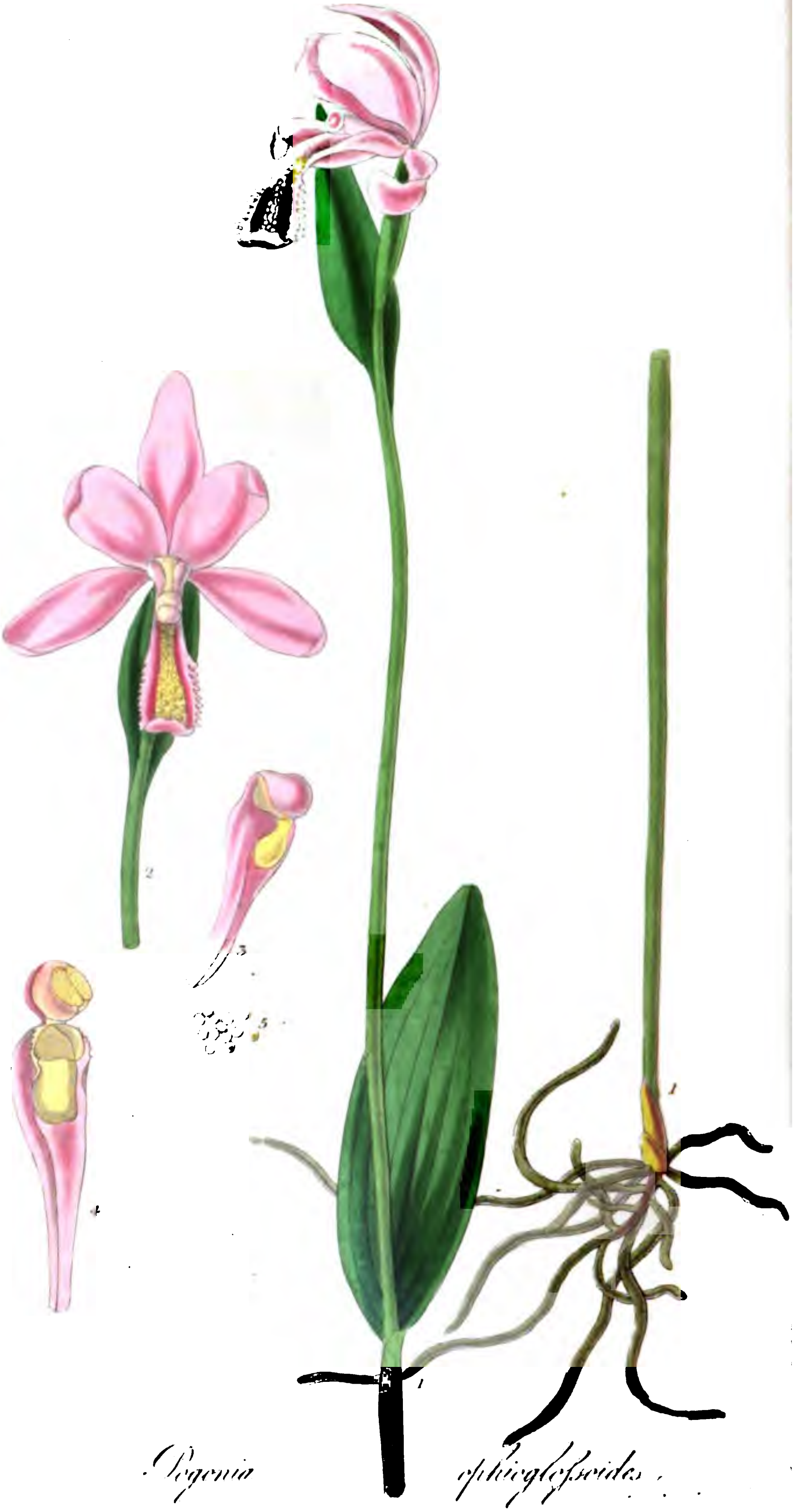
Root consisting of several thick, fleshy, brown, tortuose, simple, fasciculated fibres. *Leaves* two, opposite, both springing from the root, and from four to six inches in length, broadly obovate, obtuse, pale green, waved, glabrous, with a central nerve, and several parallel ribs or lines, most visible on the underside; the base tapers down into a long narrow kind of footstalk. The colour of the upper surface is of a rather deep, but yellowish-green, the under side paler.

Scape about equal in length with the leaves, acutely quadrangular, or, according to NUTTALL, pentangular, (a circumstance perhaps depending on the number of flowers). In the present instance, the *flowers* are four in number, each subtended by a foliaceous, lanceolate *bractea*, longer than the flower. *Petals* of an uniform paleish purple color, conniving into a galea; the two lateral ones ovato-acuminate, rather the largest and free; the three superior ones united. The *lip* is large, pendant, ovate, narrowed at the base, obtuse, raised in the middle, the margins crenate, altogether of a yellowish-white color, or with a purple blotch running down on each side of the centre: *Spur* pendant, about as long as the lip, linear, compressed, clavate at the extremity, pure white. *Anther* terminal, large, purple, 2-celled; each *cell* containing a *pollen-mass* of dull green granules, forming the head; and tapering down into a narrow pellucid footstalk, which is inserted into a gland. *Germen* linear, twisted, green, a little longer than the spur.

Roots of this plant were received at the Botanic Garden of Glasgow from Mr KIPPIN of Montreal, in the neighbourhood of which place it appears to be not uncommon, although it is also met with as far southward as New York and Carolina; there, however, affecting shady and rocky situations upon the mountains. With us, it flowered during the month of May, being placed in a large box along with *Primula pusilla*, and kept in a common frame, wherein air was freely admitted.

In the color of the flowers, this *Orchis* varies from purplish to a pure white; and the size of the whole plant, as I perceive from specimens given me by Mr BOOTT, which were gathered in the neighbourhood of Boston, frequently exceeds double the dimensions of the individual here delineated.

Fig. 1. Flower with the petals forced back, *slightly magnified.* Fig. 2. Single pollen-mass, *much magnified.*



Pogonia ophioglosſoides.

POGONIA OPHIOGLOSSOIDES.

Adder's-tongue Pogonia.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

DIV. *Anth. terminalis inserta, persistens. Massæ pollinis vel pulvereæ vel e corpusculis angulatis: basi vel infra apicem affixæ.*—BR.

GEN. CHAR.—*Labellum* sessile, cucullatum intus cristatum. *Petala* 5, distincta, eglandulosa. *Pollen* farinaceum.—*Br. in Hort. Kew.*

Pogonia *ophioglossoides;* radice fibrosa, scapi folio bracteaque elliptico-lanceolatis, petalis exterioribus oblongo-ovatis.

P. ophioglossoides, *Bot. Reg.* t. 148.—NUTT. *Gen. of N. Am. Pl.* v. ii. p. 591.

Arethusa ophioglossoides, LINN. *Sp. Pl.* p. 1346.—PURSH, *N. Am. Fl.* v. ii. p. 591.

Root composed of several thickish, fleshy, slightly downy fibres, some of which are branching. *Scape* nearly a foot in height, erect, slender, terete at the base, the upper part compressed, triangular. Near the middle of the scape is a single, almost erect, elliptico-lanceolate, faintly-nerved, rather thick, coriaceo-carnose *leaf,* of a yellowish-green color, sheathing at the base. *Bractea* single, similar in every respect to the leaf, but much smaller.

Flower single, terminal, large. *Germen* linear, oblong, triquetrous, straight, erect; the rest of the flower nodding. *Petals* all concave, and directed forward, but not connivent, distinct to the very base, rose-colored: the three outermost ones oblongo-ovate, equal; the two innermost larger, ovato-elliptical. *Lip* longer than the petals, narrow, of a delicate pale rose-color, with oblique darker streaks, its base entire, and embracing with its involute margins the lower part of the column; its upper half dilated, concave, deeply toothed at the margin, the apex entire, waved: the whole length of the centre of the lip is beset with elevated papillæ, purplish towards the apex, and glabrous, the rest yellow and downy. *Column of fructification* purplish, elongate, clavate, convex at the back, plane in the front, where, towards the upper extremity, is situated the concave subquadrate stigma; its upper margins slightly lacerated. *Anther* terminal, convex at the top, moveable, but fixed by its back between two teeth on the hind part of the column, with its lower part inserted into a hollow on the top of the column, 2-celled; each cell filled, as it appears, with an uniform farinaceous *pollen-mass.*

This graceful orchideous plant is a native of North America, extending from Canada* to Carolina, according to Pursh; and it appears from the account given of it in the Botanical Register (where a dwarf state of the plant is represented), to have been introduced into our gardens about the year 1815 by Mr Nuttall. The specimens here figured flowered in great perfection, along with the still rarer *Habenaria blephariglottis*, in the garden of Dalhousie Castle, under the superintendance of Mr Archibald, from roots sent from Canada by Lady Dalhousie.

This genus, as characterised by Mr Brown, comprises only a part of the species included in Jussieu's *Pogonia*, and is distinguished from *Arethusa*, by the sessile labellum not connected with the column, by the petals being distinct to the base, and by the simply farinaceous, not angular pollen.

Figs. 1, 1. Plants, *natural size*. Fig. 2. Front view of a flower, with the petals spread open. Fig. 3. Column with the Anther closed. Fig. 4. Column with the moveable anther sprung back, but still attached by its back. Fig. 5. Pollen.—*All more or less magnified.*

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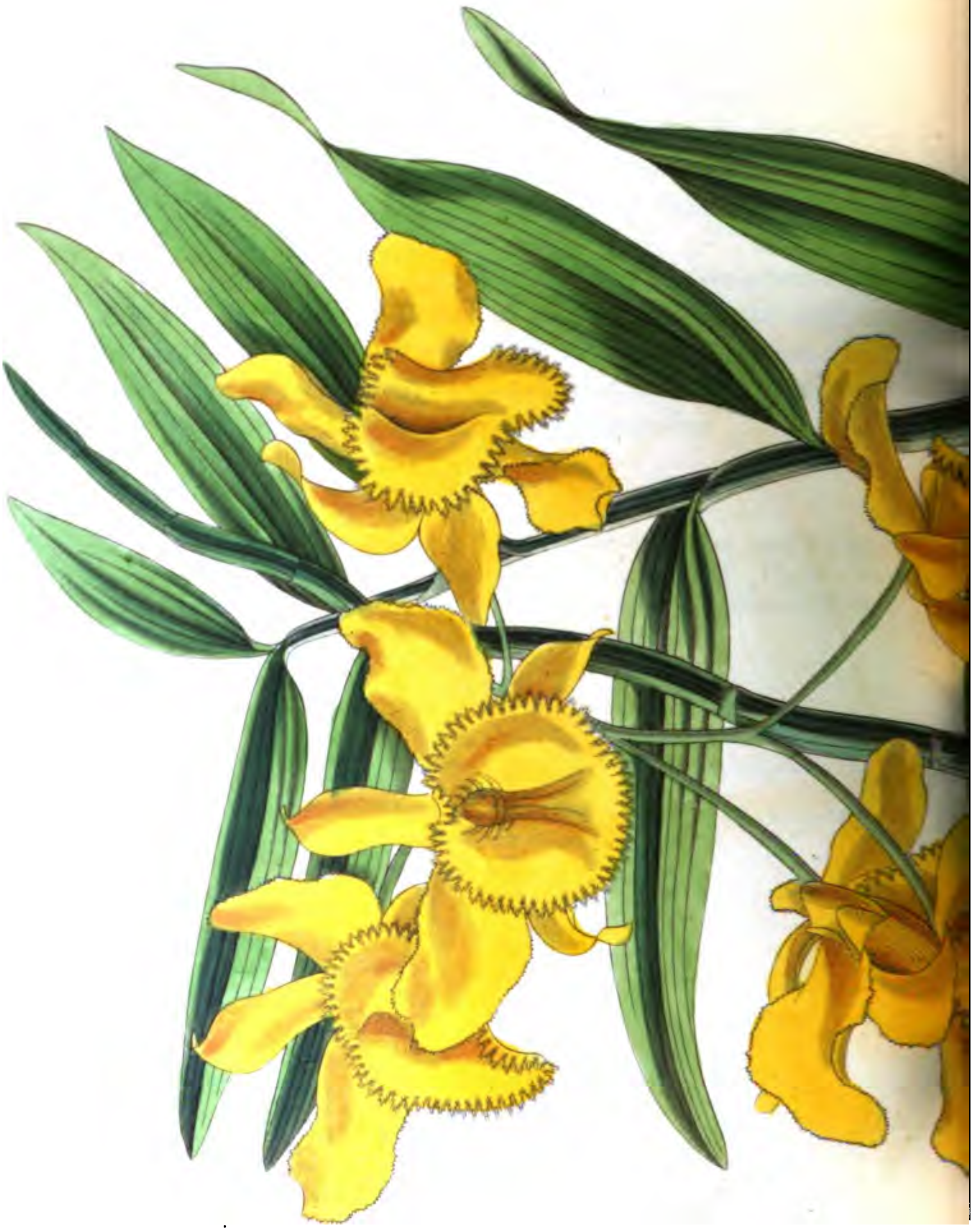
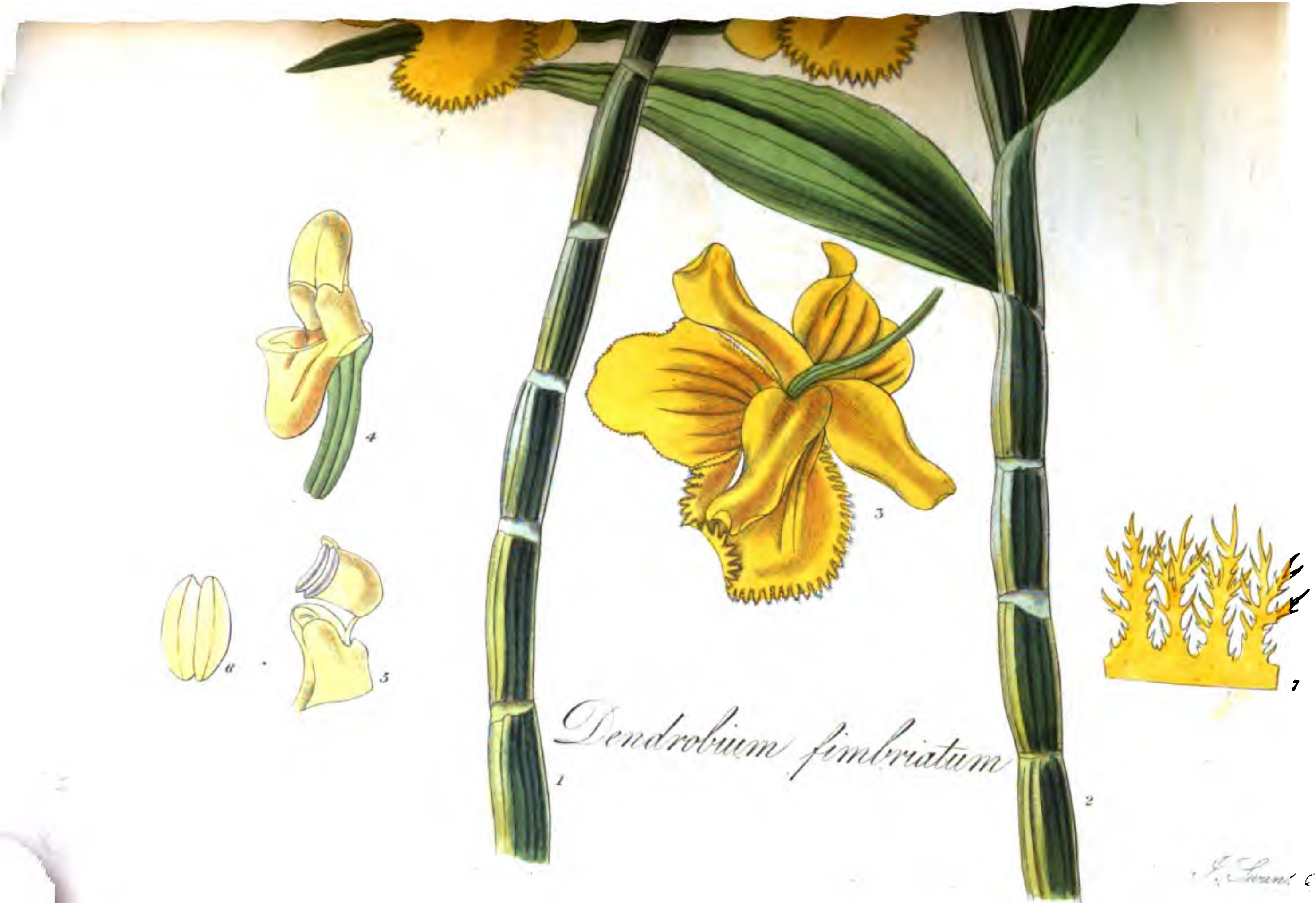
* My valued friend Francis Boott, Esq. has enriched my herbarium with charming specimens of the *Pogonia ophioglossoides*, from the vicinity of Boston.





Dendrobium fimbriatum

J. Swan Sculp.t Glasgu

DENDROBIUM FIMBRIATUM.

Fringed Dendrobium.

GYNANDRIA MONANDRIA.—NAT. ORD. *ORCHIDEÆ.*

GEN. CHAR.—*Labellum* ecalcaratum, articulatum cum apice processus unguiformis, cujus lateribus petala antica adnata, calcar æmulantia. *Massæ pollinis* 4, parallelæ.—*Br.*

Dendrobium *fimbriatum*; caulibus erectis fertilibus aphyllis, foliis lanceolatis striatis, racemis multifloris, labello indiviso oblique campanulato fimbriato, perianthii foliolis tribus exterioribus basi obtuse calcaratis.

Roots consisting of numerous, large, white, simple and fleshy fibres. *Stems* a foot or a foot and a half in length, about half an inch in diameter at the base, terete, tapering gradually towards the extremity, which is not a quarter of an inch in breadth; zig-zag, jointed, the whole of the fertile stems, and the lower parts of the sterile ones striated with the membranaceous sheathing remains of the bases of former years' leaves. The *leaves* themselves are confined to the upper extremity of the sterile branches, four or five inches long, lanceolate, alternate, striated, sheathing at the base.

Raceme drooping, five or six inches in length, consisting of about six large and very beautiful *flowers*, which are entirely of a rich fulvous or tawny color. The three exterior *segments* of the *perianth* are the smallest, about an inch long, ovate, spreading, their margins entire, and, as well as the extremities, more or less rolled back, united at the base, and prolonged into a very obtuse ascending spur; the two *inner segments* broadly ovate, very obtuse, somewhat undulated, the margins more or less recurved, and minutely ciliated: *Lip* large, pendent, obliquely campanulate, the base scarcely forming a tube, the mouth very much spreading, and most beautifully fimbriated at the margin, the base running down into the spur behind. *Germen* pedicelliform, slightly swollen upwards, and furrowed, not twisted. *Column of fructification* yellow, very short. *Stigma* large, square. *Anther* yellow, large, forming a sort of operculum on the summit of the column, and attached, by means of a filament near its summit at the back, to the top of the back part of the column: two-celled; and containing two *pollen-masses*, each of which is oblong, yellow, waxy, divided by a longitudinal line.

Among the many valuable plants which, in the month of April last, I had the gratification of seeing at the rich Botanic Garden at Liverpool, under the superintendance of my kind and valued friends the Messrs SHEPHERD, none interested me more than that which I have figured in the accompanying plate. It was cultivated, along with many other choice tropical orchideous plants, with a degree of success which I have never before witnessed in this charming family, and this effected by no very peculiar mode of treatment. The grand secret seemed to be in placing them near the light, and in supplying them with a considerable degree of heat and plenty of water: to which I may add, that those which had long and rather trailing stems, were slightly attached to the back wall, whence they appeared to derive a degree of moisture and of nourishment which was useful to them.

This is the second * species of this beautiful genus which Mr SHEPHERD is so fortunate as to have had in blossom; and the individual was, as in the first instance, received from Dr WALLICH of the Calcutta Botanic Garden, being probably a native of woods in that neighbourhood. In the general structure of its flower, the *Dendrobium fimbriatum* bears considerable affinity with *D. Pierardi*; but the color of this is wholly different, being entirely of a deep and bright fulvous orange hue. The lip is very short, scarcely forming a tube, most elegantly fimbriated at its margins, and the two internal leaflets of the perianth are finely ciliated.

Fig. 1. Flowering stem. Fig. 2. Sterile stem, *natural size.* Fig. 3. Back view of a flower. Fig. 4. Column of fructification, with the spur, and a portion of the Germen. Fig. 5. Column of fructification, with the Anther-case separating from the top of the column, but adhering by its filament. Fig. 6. Pollen-masses. Fig. 7. Portion of the fimbriæ.—*All more or less magnified.*

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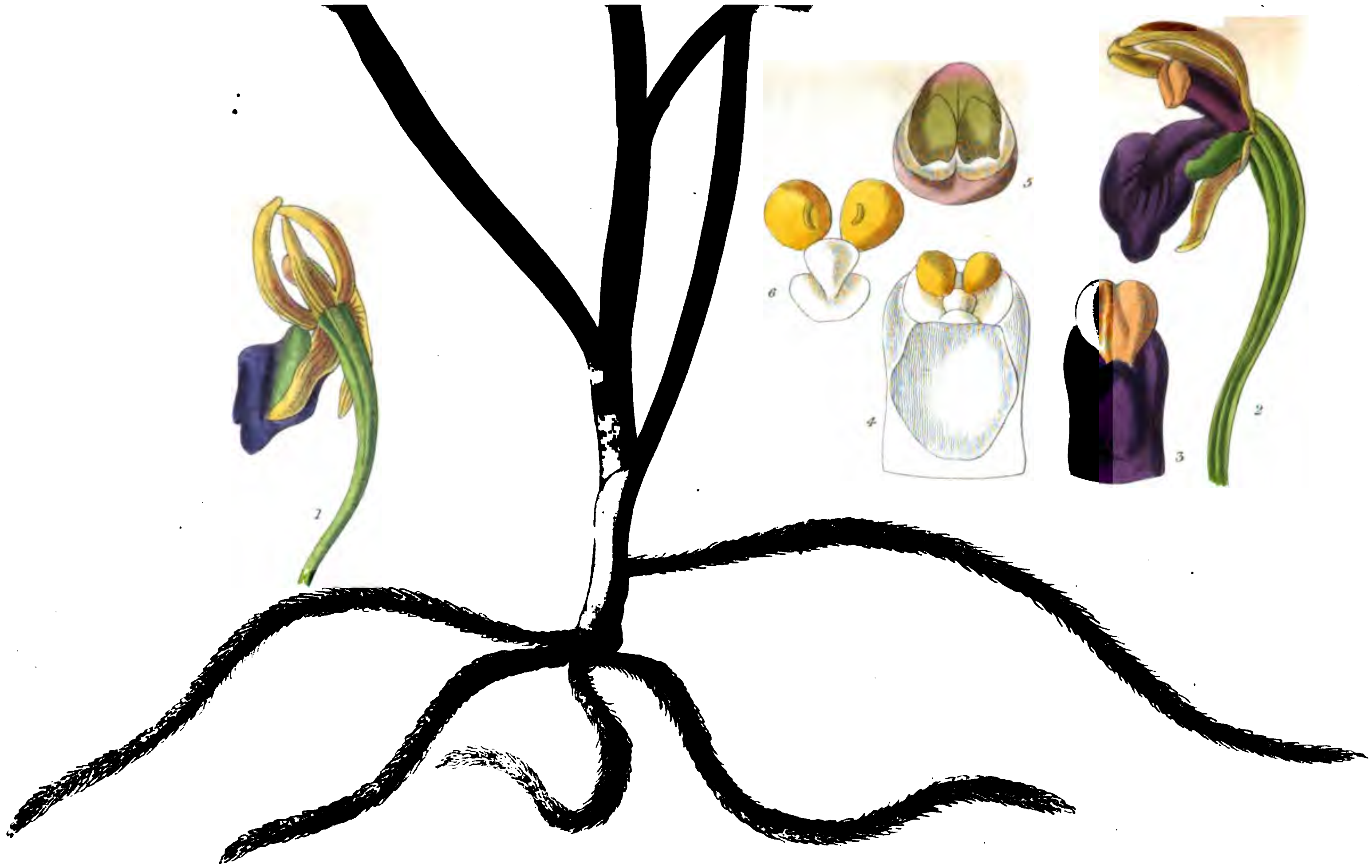
* The first is the *D. Pierardi*, figured at t. 9. of the 1st volume of this work.



Vanda trichorhiza

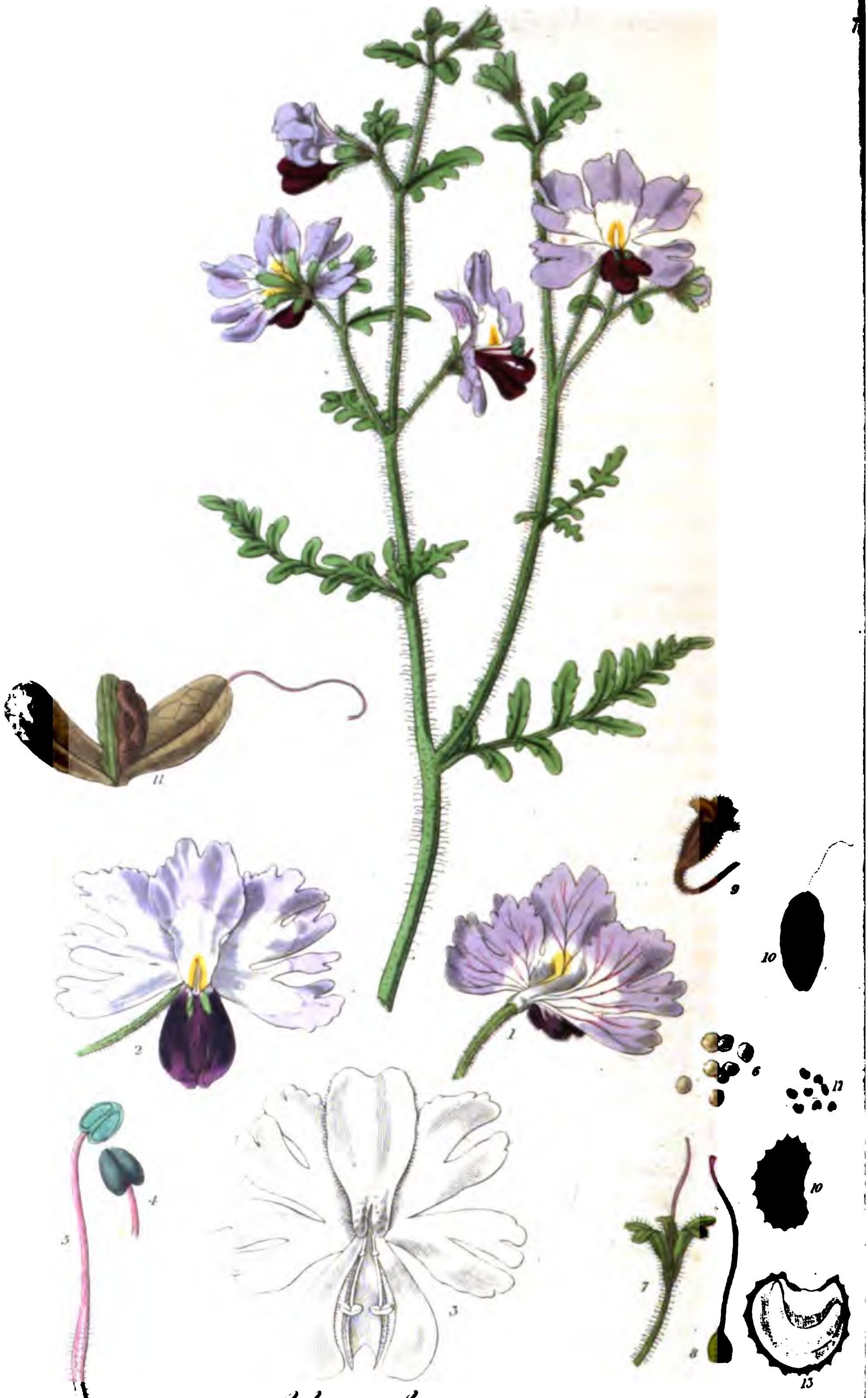
this again adheres to another, larger and subquadrate, of nearly the same texture, and which formed the process above mentioned (*proscolla*, RICH.) on the top of the stigma.

Although I have ranked this genus under *Vanda*, I feel great doubt as to the propriety of so doing. The habit of the individual is unquestionably that of *V. teretifolia* of LINDLEY, and the flowers have also some affinity, especially in the structure of the anther and pollen-mass. But that plant the author considers as a doubtful species of the genus, and both are certainly very different in general appearance from the *Vanda Roxburghii* and *V. paniculata*, which are the original species that Mr BROWN's generic character was intended to embrace.

The main point, however, wherein the present individual differs from the generic definition of *Vanda*, as laid down by Mr BROWN, is the want of a spur to the labellum. In this plant, too, there seems to be a remarkable disposition in the arrangement of the petals, of which the three superior ones curve over the upper part of the flower, whilst the two lower ones are applied to the under side of the labellum, their bases being united with it.

The plant here figured was received by Messrs SHEPHERD, at the Liverpool Garden, from Dr WALLICH, and by those gentlemen kindly communicated to me.

Fig. 1. Back view of a flower. Fig. 2. Front view of the same. Fig. 3. Column of fructification, with the stigma and anther. Fig. 4. Column of fructification with the anther (Fig. 5.) removed, and shewing the pollen-masses. Fig. 6. Pollen-masses attached to their gland, and by means of it to the larger gland which formed the upper point of the stigma.—*All more or less magnified.*



R. K. Greville Esqr. Delt. *Schizanthus pinnatus* J. Swan Sculpt.

SCHIZANTHUS PINNATUS.

Pinnated-leaved Schizanthus.

DIDYNAMIA ANGIOSPERMIA (DIANDRIA, *Vahl.*)—NAT. ORD. *PERSONATÆ*, *Brown, Juss.*

GEN. CHAR.—*Calyx* quinquepartitus. *Corolla* bilabiata, resupinata; labio superiore quinquepartito, inferiore tripartito. *Stamina* quatuor, duo sterilia. *Capsula* bivalvis, bilocularis.—*Vahl.*

Schizanthus pinnatus, " RUIZ et PAV. *Fl. Peruv.* v. i. p. 13. t. 17."—VAHL, *Enum.* v. i. p. 171.—*Bot. Mag.* t. 2404.

Stem annual, green, erect, cylindrical, hairy with glandular pubescence, branched, the branches dichotomous. *Leaves* oblong, more or less deeply pinnatifid, with the segments oblong, obtuse, entire or again pinnatifid, with a few glandular hairs, dark green. *Bracteas* to the upper flowers two to each pedicel, unequal, subovate, more or less toothed or incised.

Flowers from the axils of the branches solitary, or forming terminal *racemes*, not unfrequently secund. *Pedicels* about an inch long, slender, erect, afterwards reflexed. *Calyx* very deeply cleft into five, spathulate, obtuse, glanduloso-pilose segments, recurved at the extremity, afterwards enlarging and becoming more foliaceous. *Corolla* about an inch broad, very handsome, 2-lipped. The *tube* very short: the *upper lip* very large, spreading out into five cuneate segments; of these the four lateral ones are bifid, their segments acutely notched and suberose, white at their base, the rest of a more or less deep purple colour, delicately veined at the back; the upper or central one oblongo-ovate, bluntly notched at the point, and somewhat toothed and ciliated at the margin: the *palate* prominent, yellow with deep purple spots, perforated. *Lower lip* tripartite, with dark violet-colored segments, white at the base; of these the two lateral ones are falcate, plane, slightly ciliated at the inner margin; the intermediate one obcordate, slightly ciliated, its sides incurved. *Stamens* four, two *fertile*, inserted in the tube on the lower side of the corolla, shorter than it, with the filaments subulate, pubescent at the base, purplish, terminated by an ovate, 2-lobed, dark green *Anther*, with yellowish *pollen*; and two *sterile stamens* inserted upon the upper side of the tube; their *filaments* shorter than those of the fertile ones, pubescent, the *Anthers* abortive, and forming small white capitate extremities. The *Germen* is small, green, ovate; *Style* long, filiform, purple, reaching beyond the fertile stamens, glabrous; *Stigma* small, capitate, whitish, *Capsule* scarcely so long as the persistent calyx, oval, crowned with the style, and opening by two valves. *Receptacle* of the seeds central, longitudinal, attached one on each side of the dissepiment. *Seeds* numerous, reniform, punctato-rugose, dark brown. *Albumen* waxy. *Embryo* immersed in the albumen, curved, the *radicle* directed towards the hilum of the seed.

It would require a plate of a far larger scale than the limited size of this publication will possibly allow, to do justice to the beauty of the long branches of this plant, loaded as they are with numerous and lovely flowers. All that is attempted here, is to give a figure of a small sprig (which, together with some of the dissections, are from the pencil of Mr GREVILLE), and such details as may convey an idea of the structure of the flowers and fruit [*].

Dr GRAHAM, who imparted to me specimens from the Edinburgh Botanic Garden, received the seeds from Chili, through the same channel [†] as those of the *Calceolaria* figured in this Number. The plant appears to be annual; and, after bearing a profusion of blossoms during the whole month of May, Dr GRAHAM tells me that it is yet, in the end of June, covered with new buds, in all stages of growth; so that a more desirable inmate for the Greenhouse can scarcely be conceived. The color of the corolla is liable to vary in point of intensity, and also in size; some being even larger than those here represented; and the leaves in the depth of their ultimate divisions.

Fig. 1. Back view of a flower. Fig. 2. Front view of the same. Fig. 3. Front view of the corolla. Fig. 4. Anther. Fig. 5. Stamen, with the cells of the Anther burst. Fig. 6. Pollen. Fig. 7. Calyx and pistil. Fig. 8. Pistil. Fig. 9. Capsule, *nat. size*, enclosed within the calyx. Fig. 10. Capsule removed from the calyx. Fig. 12. Capsule with the valves open, shewing the receptacle of the seeds. Fig. 11. Seeds, *natural size*. Fig. 13. Seed, *magnified*. Fig. 14. Section of seed, shewing the Albumen and Embryo.—*All but* Fig. 7. 9. and 12. *more or less magnified*.

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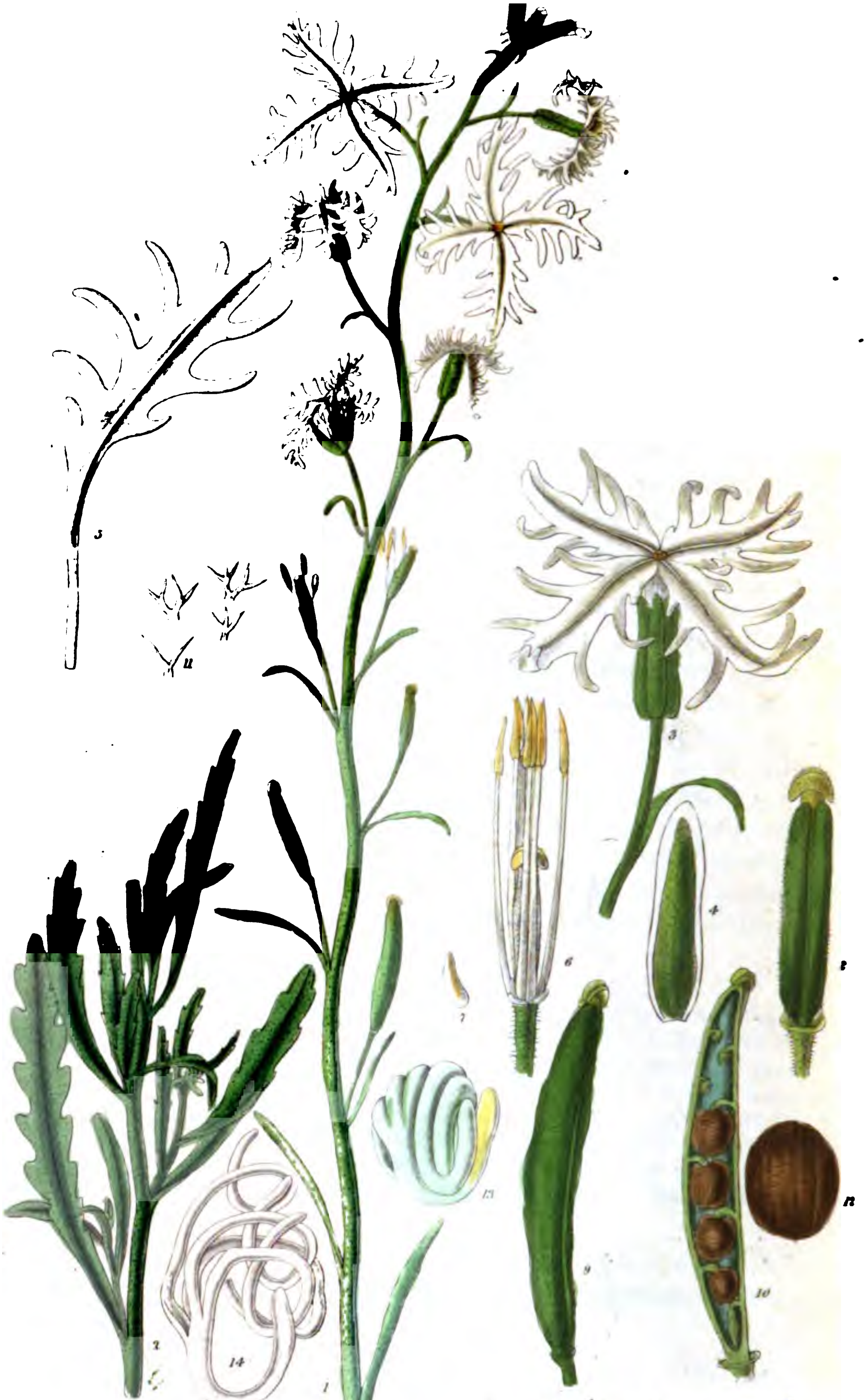
[*] This has come to perfection in the Botanic Garden of Edinburgh, in the month of July.

[†] Mr CRUIKSHANKS, a resident in Chili.



J. Swan Sculpt Glasgow

Schizopetalon Walkeri

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SCHIZOPETALON WALKERI.

Walkers's Schizopetalon.

TETRADYNAMIA SILIQUOSA.—NAT. ORD. *CRUCIFERÆ.*

GEN. CHAR.—*Siliqua* linearis, stigmate subsessili. *Cotyledones,* singulo *bipartito!* spiraliter tortæ. *Petala* pinnatifida.

Schizopetalon *Walkeri.*

S. Walkeri, SIMS, *in Bot. Mag.* t. 2379.

Stem from a foot to a foot and half in height, erect or spreading, cylindrical, branched, branches subvirgate, simple, flexuose; the whole covered with minute branched and stellate pubescence. *Leaves* varying from one to three or four inches long, linear-lanceolate, tapering at the base, the smaller ones subserrate or almost entire, the larger sinuato-pinnatifid; both kinds rough with branched pubescence.

Flowers in terminal racemes, subcorymbose at first, afterwards decidedly racemose. *Pedicels* nearly an inch long, erecto-patent, slender, furnished with a linear *bractea,* which is inserted near the base. *Calyx* of four linear-oblong, erect, closed leaflets, equal at the base, the back green, pubescent; the margins membranaceous or diaphanous. *Corolla* of four cruciform petals. *Claws* rather long and linear; *limb* lanceolate, white, channelled in the middle above, somewhat keeled and greenish below, the margin pinnatifid, with three or four narrow linear segments on each side. *Stamens* six, four longer and opposite, approximating in pairs, but still shorter than the claws of the corolla, the two others opposite and somewhat shorter. *Anthers* linear, sagittate, yellow.

At the base of the stamens are four small green ovato-lanceolate shining glands. *Pistil* columnar, very pubescent, less so on the margins of the septum. *Style* extremely short, green, subglabrous. *Stigma* capitate, yellow, with a vertical furrow, so as to appear shortly 2-lipped. *Pod* nearly erect, linear, somewhat swollen in the middle, pubescent. *Valves* convex. The margins of the dissepiment somewhat prominent. *Seeds* eight or ten in each cell, placed in two rows. *Seed-stalk* rather thick, short. *Seeds* pendent, ovato-rotundate, compressed, dotted in lines. *Embryo* when removed from the seed so compactly and spirally twisted, that it is unravelled with difficulty. When untwisted, each *cotyledon,* in itself very long and linear, is seen to be cleft almost down to the very base into two equal filiform portions of a bluish-green colour. The *ra-*

dicle is long, curved upwards, and, as it appears, towards the rima of the cotyledons, but the extreme intricacy of the lobes of these, prevents my speaking with confidence upon that point.

Through the great kindness of my friend Dr Graham, I am enabled to give a more full analysis of the parts of fructification in this most singular plant than has hitherto appeared, and, what gives me peculiar pleasure, (since the organ was unknown to Dr Sims, and was therefore omitted in his generic character given in the Botanical Magazine), of the embryo of the seed. This is not only curiously and spirally twisted, even more so than in the division of the Cruciform family denominated by De Candolle *Spirolobeæ* and *Diplecolobeæ;* but, what is, as far as I know, as great an anomaly in the cotyledons as the pinnatifid petals are in the corolla of this tribe, each cotyledon is bipartite; so that there are four lobes or segments instead of two.

The blossoms, which are fragrant, their scent resembling that of Hawthorn flowers, were produced from seeds sent from Chili by Mr Cruikshanks, in the greenhouse both of the Edinburgh and Glasgow Botanic Gardens, during the month of May, in great profusion. The individual figured in the Botanical Magazine blossomed in Mr Walker's collection in November, a circumstance which may account for the diminutive size of its petals.

Fig. 1. Flowering branch of a stem. Fig. 2. Portion of a branch with the lower leaves. Fig. 3. Single flower. Fig. 4. Leaflet of a calyx. Fig. 5. Back view of a petal. Fig. 6. Stamen and Pistil. Fig. 7. Gland from between the stamens. Fig. 8. Germen. Fig. 9. Pod. Fig. 10. The same with a valve removed to shew the seed. Fig. 11. Hairs. Fig. 12. Seed. Fig. 13. Embryo. Fig. 14. Embryo, in part unravelled.—*All more or less magnified.*

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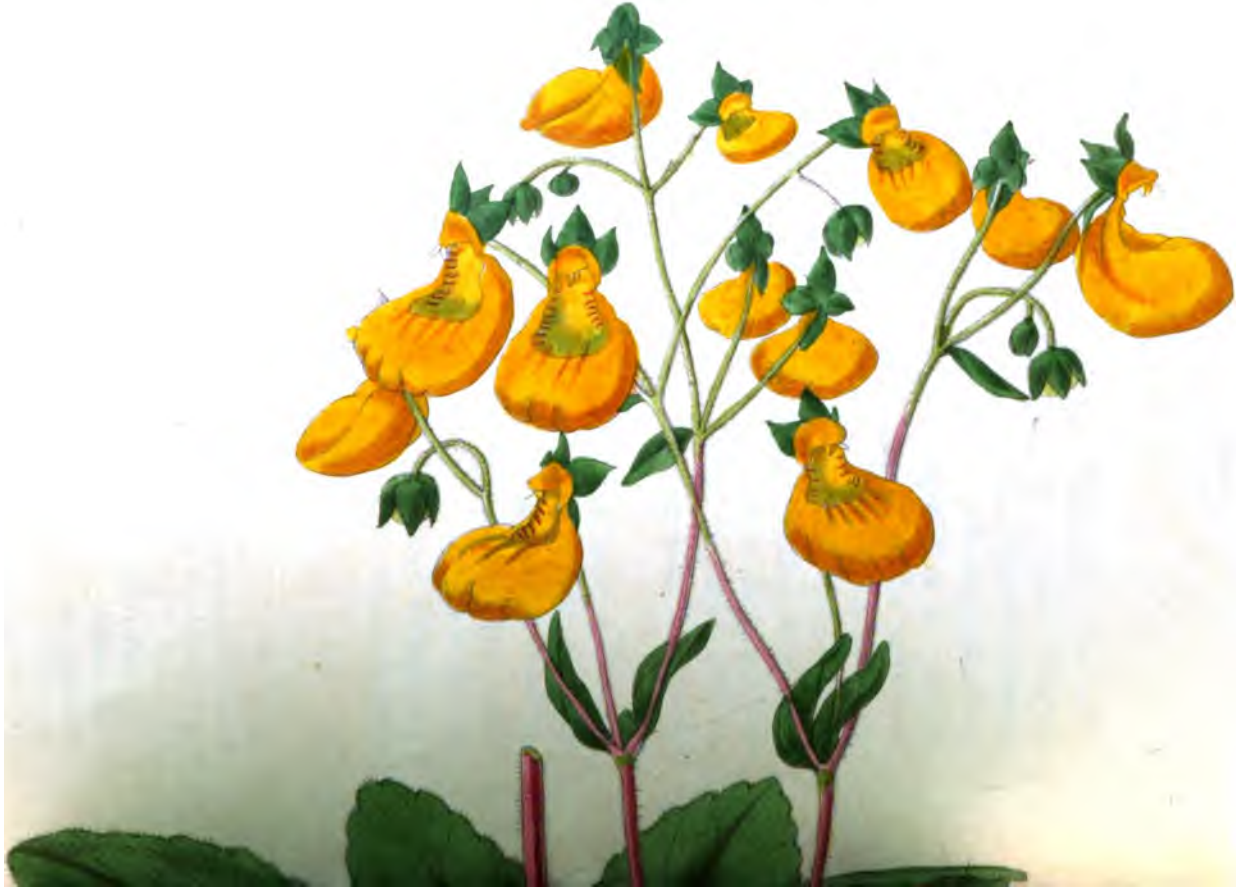

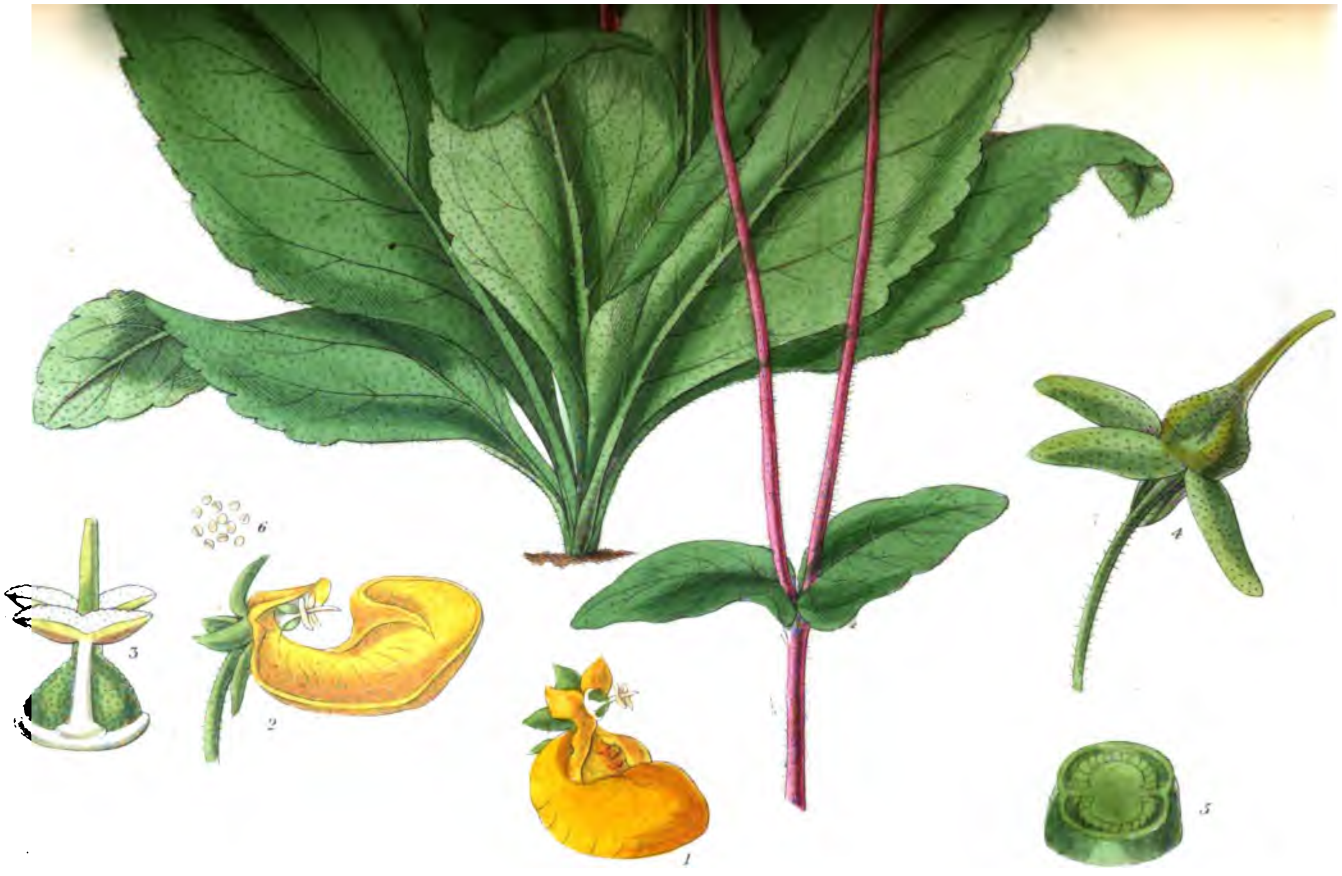

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Calceolaria paralia

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CALCEOLARIA PARALIA.

Glandular-stalked Slipper-flower.

DIANDRIA MONOGYNIA.—NAT. ORD. *SCROPHULARINÆ*, *Juss. Br. Kunth.*

GEN. CHAR.—*Calyx* quadripartitus. *Corolla* bilabiata: labium inferius inflatum, calciforme. *Capsula* semibivalvis: valvulis bifidis.—*Vahl.*

Calceolaria *paralia*; caule erecto superne dichotomo paucifolio glanduloso-piloso viscido, foliis crenato-dentatis pubescentibus, radicalibus ovatis petiolatis, caulinis oblongis sessilibus.

Calceolaria paralia, " CAVAN. *Icon.* v. 5. p. 29. t. 447." ?—VAHL, *Enum.* v. i.

CALCEOLARIA PARALIA.

Since the letter-press for t. 75. *Calc. paralia* was printed, I find that this plant has appeared in the Botanical Magazine as the *Calc. corymbosa* of the *Fl. Peruv.*, with the characters of which, however, I must confess that my specimens did not well agree.

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pubescent, foliaceous bracteas, the uppermost ones the smallest. In each dichotomy is, besides, one (rarely two) pedicellate flowers. *Calyx* dark green, of four ovate, spreading, at length reflexed, laciniæ, which are, as well as the pedicels, glanduloso-pubescent, and have their margins revolute. *Corolla* of a fine deep yellow tint, 2-lipped; the upper lip small, arched over the organs of fructification, and pointed; the lower one standing out horizontally, very large, slipper-shaped, contracted at the base, broad and obtuse at the point, the margins singularly involute, the extremity hidden within and acuminate, having internally a few parallel lateral deep orange-coloured lines, which are seen in a degree externally. *Stamens* two. *Filaments* short, erect, white, subulate, attached to the somewhat prominent base of the corolla, and fixed by a broad and rather bulbiform base. *Anthers* pale yellow. *Cells* divaricating. *Pollen* white. subglobose, often appearing, when dry, and seen under the high power of a microscope, as if marked with a central line. *Pistil* small. *Germen* rotundo-ovate, green, glandular, 2-celled; cells many-seeded. *Style* short, straight, almost subulato-cylindrical, glabrous. *Stigma* subacute.

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Calceolaria paralia, "CAVAN. *Icon.* v. 5. p. 29. t. 447."?—VAHL, *Enum.* v. i. p. 176.?

Stems a foot or a foot and a half in height, bearing a few leaves, erect, slender, reddish, pilose, the upper part dichotomously divided, and glanduloso-pilose. *Leaves* mostly springing from the root, large, three or four inches long, ovate, rather obtuse, bluntly and irregularly dentato-crenate, distinctly veined, the veins prominent on the under surface, the base somewhat cuneate, entire, and gradually tapering into a footstalk of about an inch in length. One pair, rarely two, of small opposite leaves, about an inch long, are placed upon the stem below its divisions; when two, the lowermost are generally oblong, those nearest to the forking of the stem more or less cordate, both sessile; all of the leaves are more or less pubescent, the younger ones, especially beneath, almost tomentose.

Flowers rather numerous, large and showy, arranged in a subcorymbose, terminal, dichotomous, glanduloso-pilose, and viscid panicle; at the base of each division is placed a pair of sessile, opposite, cordate or lanceolate, pubescent, foliaceous bracteas, the uppermost ones the smallest. In each dichotomy is, besides, one (rarely two) pedicellate flowers. *Calyx* dark green, of four ovate, spreading, at length reflexed, laciniæ, which are, as well as the pedicels, glanduloso-pubescent, and have their margins revolute. *Corolla* of a fine deep yellow tint, 2-lipped; the upper lip small, arched over the organs of fructification, and pointed; the lower one standing out horizontally, very large, slipper-shaped, contracted at the base, broad and obtuse at the point, the margins singularly involute, the extremity hidden within and acuminate, having internally a few parallel lateral deep orange-coloured lines, which are seen in a degree externally. *Stamens* two. *Filaments* short, erect, white, subulate, attached to the somewhat prominent base of the corolla, and fixed by a broad and rather bulbiform base. *Anthers* pale yellow. *Cells* divaricating. *Pollen* white. subglobose, often appearing, when dry, and seen under the high power of a microscope, as if marked with a central line. *Pistil* small. *Germen* rotundo-ovate, green, glandular, 2-celled; cells many-seeded. *Style* short, straight, almost subulato-cylindrical, glabrous. *Stigma* subacute.

The genus *Calceolaria*, almost entirely confined to the western parts of South America, established by Feuillée, in his Flora of Peru, and adopted by Linnæus, was for a long time supposed to contain but two species, the *C. pinnata* and *C. integrifolia* of Smith. Lamarck, in his *Encyclopédie*, enumerated eight species; Willdenow has nine; Vahl has, principally through the labours of Cavanilles, Ruiz and Pavon, increased their number to fifty-four; and to these the celebrated travellers Humboldt and Kunth have recently added twenty; making in all seventy-four species which are now described by systematic authors. Till lately, only the *Calceolaria pinnata* and the rare *C. Fothergillii* have been known in our gardens. Now we have the *scabiosæfolia* of Sims in the Botanical Magazine, the beautiful individual here represented, and still another*, which Dr Graham informs me is now about to flower in the magnificent garden under his charge at Edinburgh.

With regard to the present individual, it is not without some hesitation that I have referred it to the *C. paralia* of Cavanilles, whose description is quoted in Vahl's *Enumeratio*, but whose figure I regret to say that I have it not in my power to consult. His character, however, sufficiently accords with my plant, except that the "capsule" and "whole plant" can scarcely be termed tomentose.

Excellent flowering specimens of this plant, with a drawing by Mr Greville, from which most of the accompanying engraving was taken, were sent to me, in the month of May, by Dr Graham, from the Edinburgh Botanic Garden, where several of the plants have flowered very freely, continuing a long time in beauty, and where, as far as I know, the species alone exists. The seeds were communicated to Dr Graham by Mr Cruikshanks, and another gentleman residing near the river Quillota in Chili.

Fig. 1. Single flower. Fig. 2. Vertical section of a flower. Fig. 3. Anther and pistil. Fig. 4. Calyx and pistil. Fig. 5. Section of the germen. Fig. 6. Pollen.—*All more or less magnified.*

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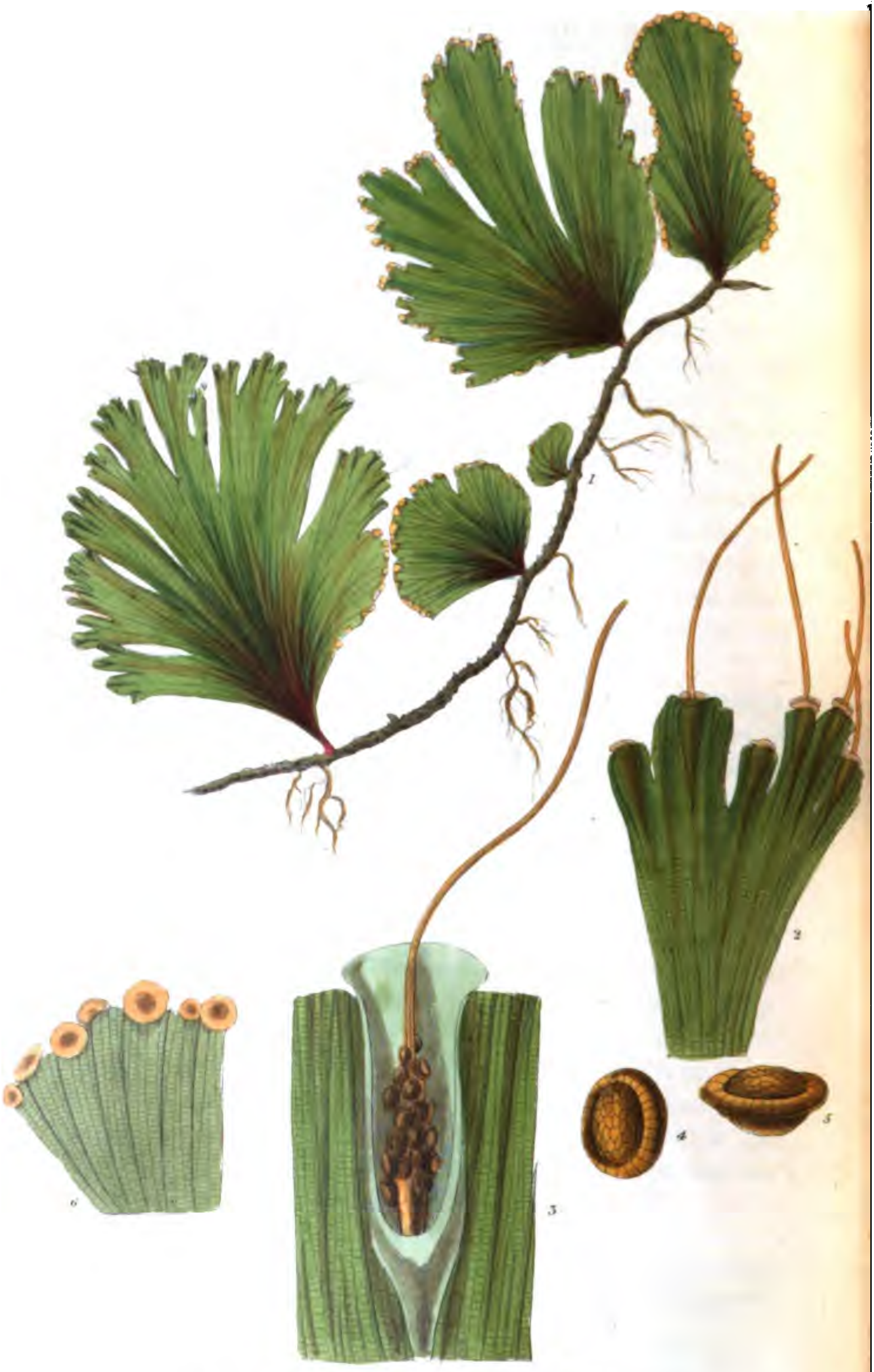
* This, I believe, will prove to be the *Calc. rugosa* of Vahl's *Enumeratio*.



Trichomanes membranacea

J. Swan, Sculpt

TRICHOMANES MEMBRANACEA.

Membranaceous Bristle-Fern.

CRYPTOGAMIA FILICES.—Nat. Ord. *FILICES.*

Gen. Char.—*Sorus* marginalis receptaculo columnari sæpius setiformi insertus. *Indusium* urceolato-campanulatum, monophyllum, erectum, sorum includens.—*W.*

Trichomanes *membranacea;* frondibus subsessilibus oblongis flabelliformibusque integris incisisve, basi cuneatis, marginibus (sterilibus) peltato-squamosis.

T. membranacea, Linn. *Sp. Pl.* p. 1560.—Swartz, *Syn. Fil.* p. 141.—Sw. *Fl. Ind. Occ.* v. iii. p. 1724.—Willd. *Sp. Pl.* v. 5. p. 499.—Smith, *in Rees' Cyclop.*

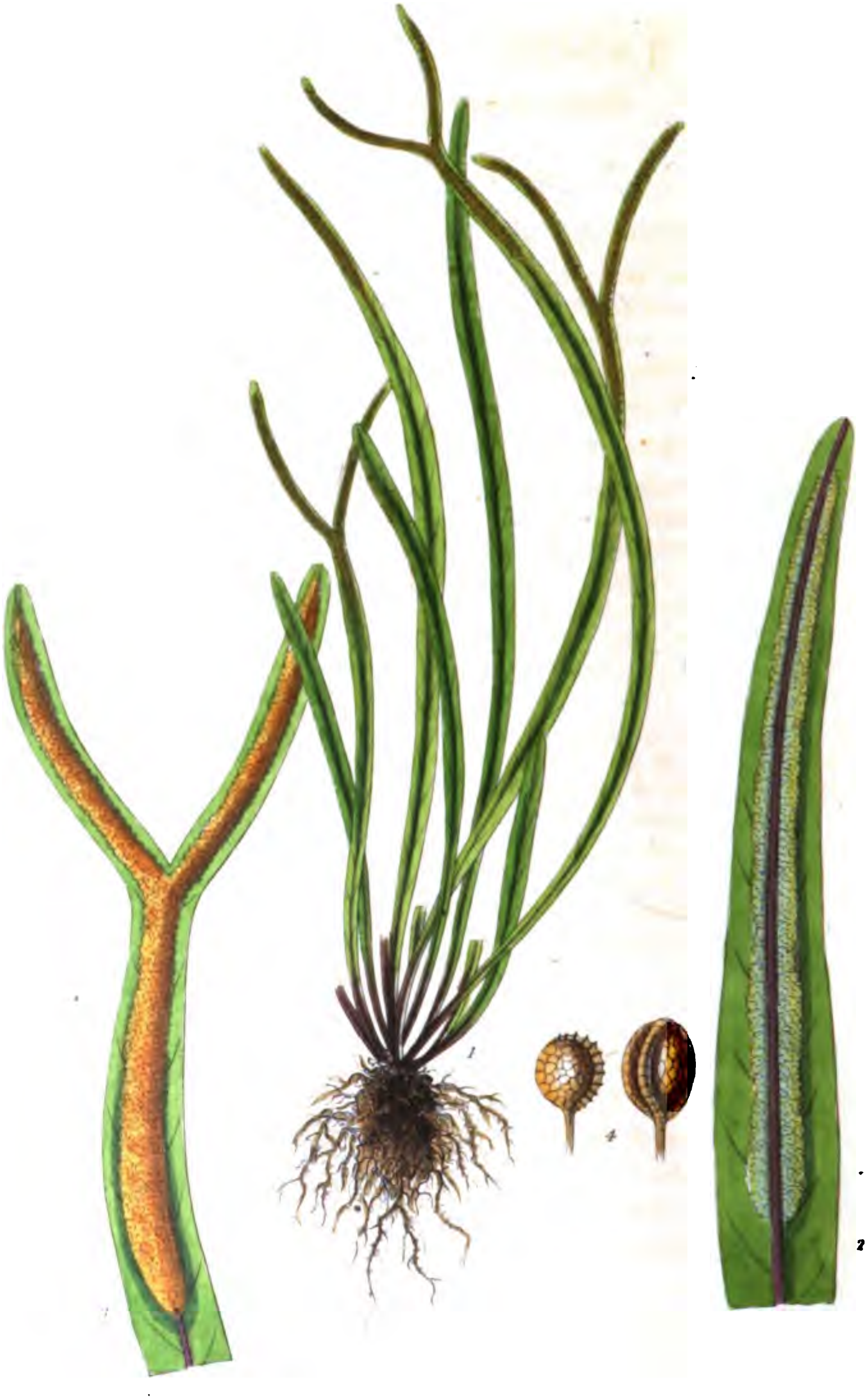
Filix Hemionitis Lichenoides americana fungi auriculis Cæsalpini æmula, radice repente, Pluk. *Alm.* p. 155. t. 285. f. 3.

Caudex several inches in length, creeping, flexuose, tomentose, brown, throwing out several branched and somewhat downy fibrous roots. *Fronds* several from the caudex, varying remarkably in size, and scarcely less so in form, from half an inch to three inches long, oblong or fan-shaped or rounded, with their margins nearly entire, or cut into more or less deep, oblong and very irregular laciniæ; the base, however, always cuneate and entire. In the sterile fronds, and in the sterile segments of the fertile ones, the margin is beset with numerous small, peltate, umbilicated, pale brown, sessile, membranaceous *scales,* which appear to be either abortive involucres, or themselves young fructifications, and corresponding with the membranaceous lips of the involucres. The structure of this frond is extremely delicate and beautiful, composed of numerous slender veins which diverge or radiate from the narrow base towards the circumference, while the spaces between them are occupied with smaller and even more delicate transverse veinlets or bars. The color is a glossy brownish green or olive, and the whole has not unaptly been compared by Sir James Smith to a Bat's wing.

Involucres (*indusia,* W.) at the extremity of the segments of the frond, numerous, narrow, urceolate, thick and fleshy, immersed in the frond, and nothing appearing beyond it but the two submembranaceous lips, forming the somewhat expanded mouth. *Sori* inclosed within the urceolus, inserted upon the somewhat swollen base of the long, much protruded, filiform receptacle. *Capsules* sessile, fixed by their centre, reticulated, furnished with a large, transverse, entire, elastic *annulus*.

This most elegant and distinctly-marked species of *Trichomanes*, is probably a native of several of the West Indian islands. I first received specimens from Jamaica through Sir JAMES SMITH and Mr SHEPHERD; and lately very abundant and luxuriant plants of it have been sent to me from St Vincent's, gathered on old trees by the Reverend L. GUILDING at an elevation upon the mountains of 2000 feet above the level of the sea.

Fig. 1. Plant, *natural size*. Fig. 2. Portion of a fertile frond. Fig. 3. Involucre cut open to shew the sorus and receptacle. Figs. 4, 5. Capsules. Fig. 6. Portion of a sterile frond, with marginal peltate scales.——*All more or less magnified.*



Tænitis graminifolia

[illegible] del.

TÆNITIS GRAMINIFOLIA.

Grass-leaved Tænitis.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES.*

GEN. CHAR.—*Sorus* linearis, continuus, quandoque interruptus, longitudinalis, inter costam et marginem exteriorem frondis situs. *Indusium* nullum.

Tænitis *graminifolia;* frondibus simplicibus furcatisve lineari-lanceolatis integerrimis glabris.

Grammitis graminoides, Sw. *Syn. Fil.* p. 22. t. 1. f. 5.?

Root consisting of numerous blackish much branched and rigid fibres, which are here and there downy. *Fronds* 4 or 5 inches in length, erect or a little curved, destitute of stipes, of a linear-lanceolate form, attenuated at the base, and slightly so at the extremity, which is frequently forked, the segments divaricating, of a pale green colour; furnished with a slender central dark purple-colored or almost black glabrous midrib, and several oblique parallel lateral veins; the margin is wholly entire, the apex rather obtuse.

The *Fructification,* consisting of innumerable capsules, destitute of involucres, appears on each side of, and close to the midrib, the midrib in two parallel lines at the back of the frond, occupying about an inch and a half or two inches of the upper extremity; in the forked fronds always running down considerably below the segments in uninterrupted lines. As the fructification advances, it covers the whole midrib, and appears to constitute only one line of capsules. These *capsules* are spherical, reticulated, brown, pedicelled and annulated, as in *Polypodium.*

I am not quite satisfied that the present fern belongs properly to the genus *Tænitis* of WILLDENOW, which is stated to have the line of fructification "inter costam et marginem exteriorem frondis;" by which is probably meant that it should be distinct both from the midrib and margin, near the centre, whereas the fructification is here placed close to the midrib; and unquestionably in one continued line, as may be seen in the young state of the capsules, (Fig. 2.). Hence this plant cannot be a *Grammitis*, which is characterized by Mr Brown as having the sori, "venula unica insidentes, axi obliqui."

Whether or not the *Grammitis graminoides* of Swartz, above cited, be the same with the individual here figured, it is not easy for me to say. Its habit is similar; but it does not attain to more than half the size of the *Tænitis graminifolia*, not exceeding two inches in height; and it has the line of capsules very much shorter, forming an oblong cluster, "costam mediam seu nervum terminans." I am, however, still much inclined to consider that plant as a small state only of the present; and if so, it unquestionably is not a *Grammitis*.

The specimen here delineated was given to me, along with many other rarities, particularly of the Fern tribe, from the island of St Vincent's, by my friend the Reverend Landsdown Guilding *.

Fig. 1. Plant, *natural size*. Fig. 2. Extremity of a simple frond with young fructifications. Fig. 3. Extremity of a forked frond, with old fructifications covering the midrib. Fig. 4. Capsules.—*All more or less magnified.*

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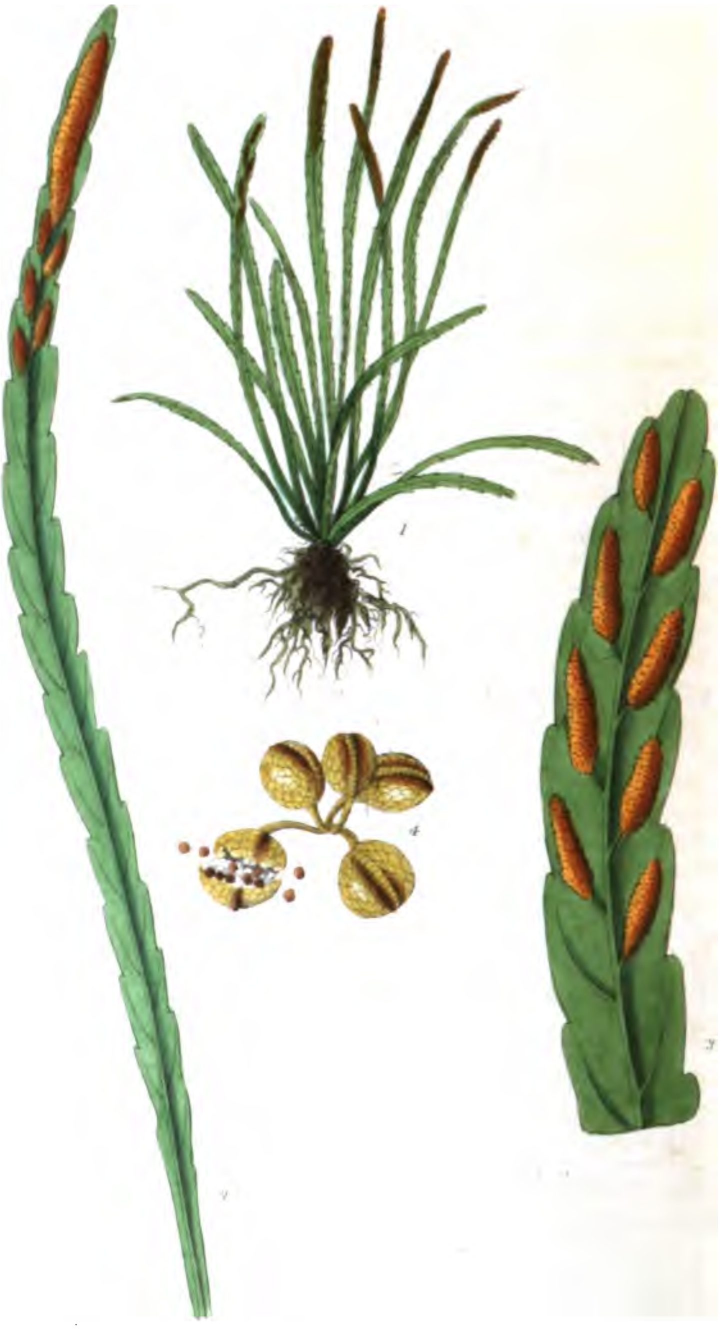
* I have, since the above was in the press, received the same plant, through the kindness of the Baron De Schack, from the Island of Trinidad.



Grammitis serrulata

GRAMMITIS SERRULATA.

Serrated Grammitis.

CRYPTOGAMIA FILICES.—NAT. ORD. *FILICES.*

GEN. CHAR.—*Sori* lineares, recti, sparsi, venula unica insidentes, axi obliqui. *Involucrum* nullum.—*Br.*

Grammitis *serrulata;* frondibus linearibus dentatis soris versus apicem frondis demum confluentibus.

G. serrulata, Sw. *Syn. Fil.* p. 22.—SCHKHUHR, *Fil.* p. 9. t. 7.—WILLD. *Sp. Pl.* v. 5. p. 141.
Asplenium serrulatum, Sw. *Fl. Ind. Occ.* v. iii. p. 1607.
Acrostichum serrulatum, Sw. *Prodr.* p. 128.

Roots composed of many slender, wiry, dark brown, branching fibres. *Caudex* slender, filiform, creeping, somewhat downy, scarcely distinguishable from the fibres of the root. *Fronds* several together, tufted, from two to four inches high, almost destitute of a stipes, linear, attenuated at the base, and scarcely a line broad in the greatest diameter, glabrous, bluntly dentato-serrate at the margin, furnished with an evident midrib, and, arising from this, several parallel oblique simple nerves.

From the uppermost of these nerves appear the oblique oblong *sori;* one on each nerve, which, as they advance in age, become confluent, and then appear to occupy the whole of the under side of the extremity of the frond, which becomes somewhat contracted and less distinctly toothed. This is the only difference between the fertile and the sterile frond.

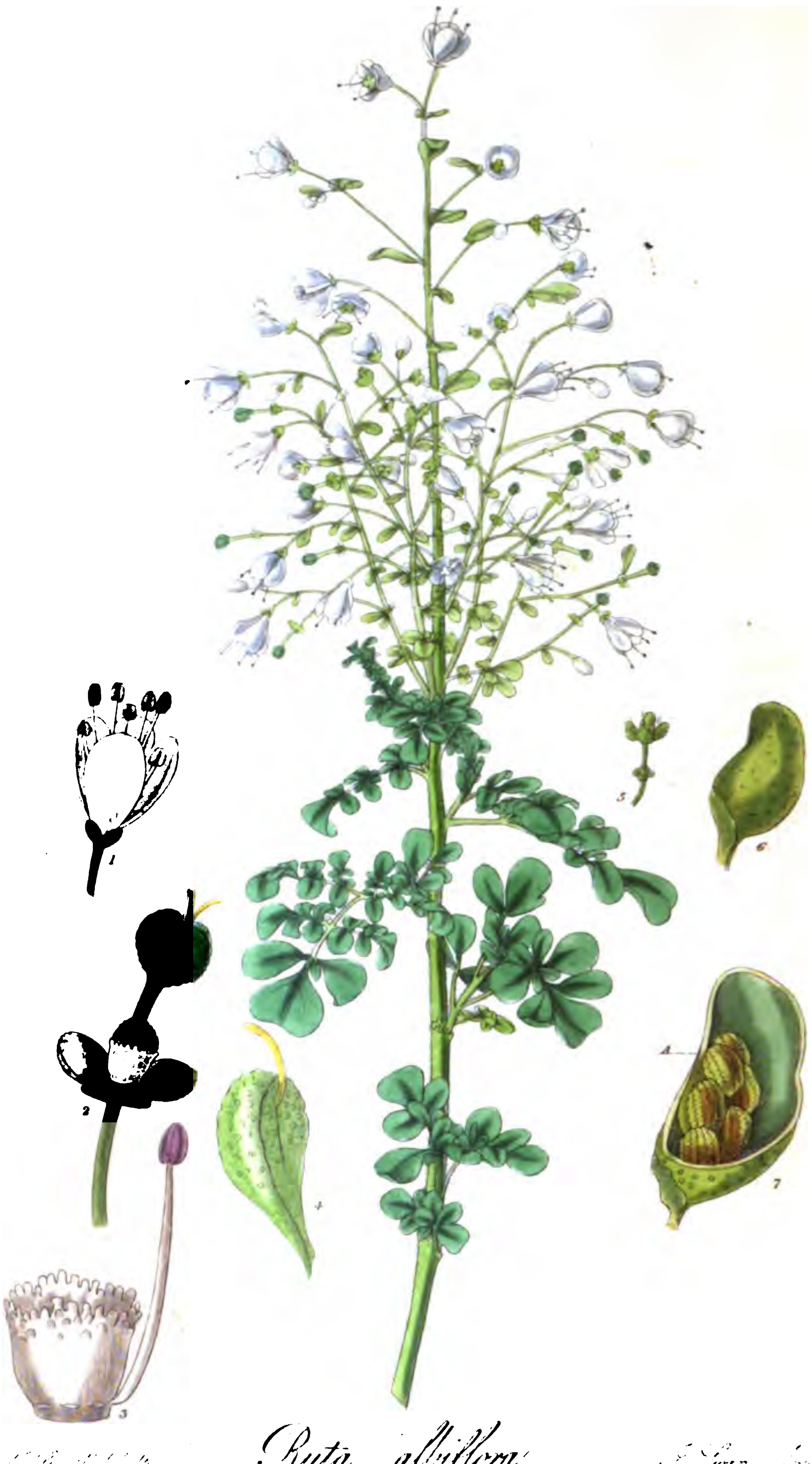
Capsules brown, annulated and pedicelled.

This pretty little fern is described by SWARTZ as an inhabitant of Jamaica, growing among mosses at the roots of trees. The Reverend LANDSDOWN GUILDING finds it in St Vincent's, on the Souffrière and other mountains, abundantly, and has communicated the specimen from which the accompanying figure was taken.

Professor RADDI, in his Synopsis of the Ferns of Brazil, mentions the *Grammitis serrulata* as an inhabitant of that country; but if I may judge from the plant which he has been kind enough to send me under that name, it is the same with the *G. myosuroides*, likewise a native of Brazil as well as of the West Indies.

This last differs from our plant in the pinnatifid, not dentate frond, and is certainly very closely allied to it, if it be not in reality a variety.

Fig. 1. Plant, *natural size.* Fig. 2. Portion of a frond with fructifications, some of which have become confluent. Fig. 3. Portion of a frond with young fructifications. Fig. 4. Capsule and seeds.—*All more or less magnified.*



Drake del.

Ruta albiflora

J. Nunn Sculp.

RUTA ALBIFLORA.

White-flowered Rue.

OCTANDRIA MONOGYNIA, (DECANDR. *Willd.*)—NAT. ORD. *RUTACEÆ.*

GEN. CHAR.—*Cal.* 4–5-partitus. *Petala* concava. *Germen* glandulo mellifero auctum. *Caps.* lobata.

Ruta *albiflora;* foliis bipinnatis, pinnulis obcordatis, floribus tetrapetalis, petalis obovatis integerrimis (albis), germine pedicellato.

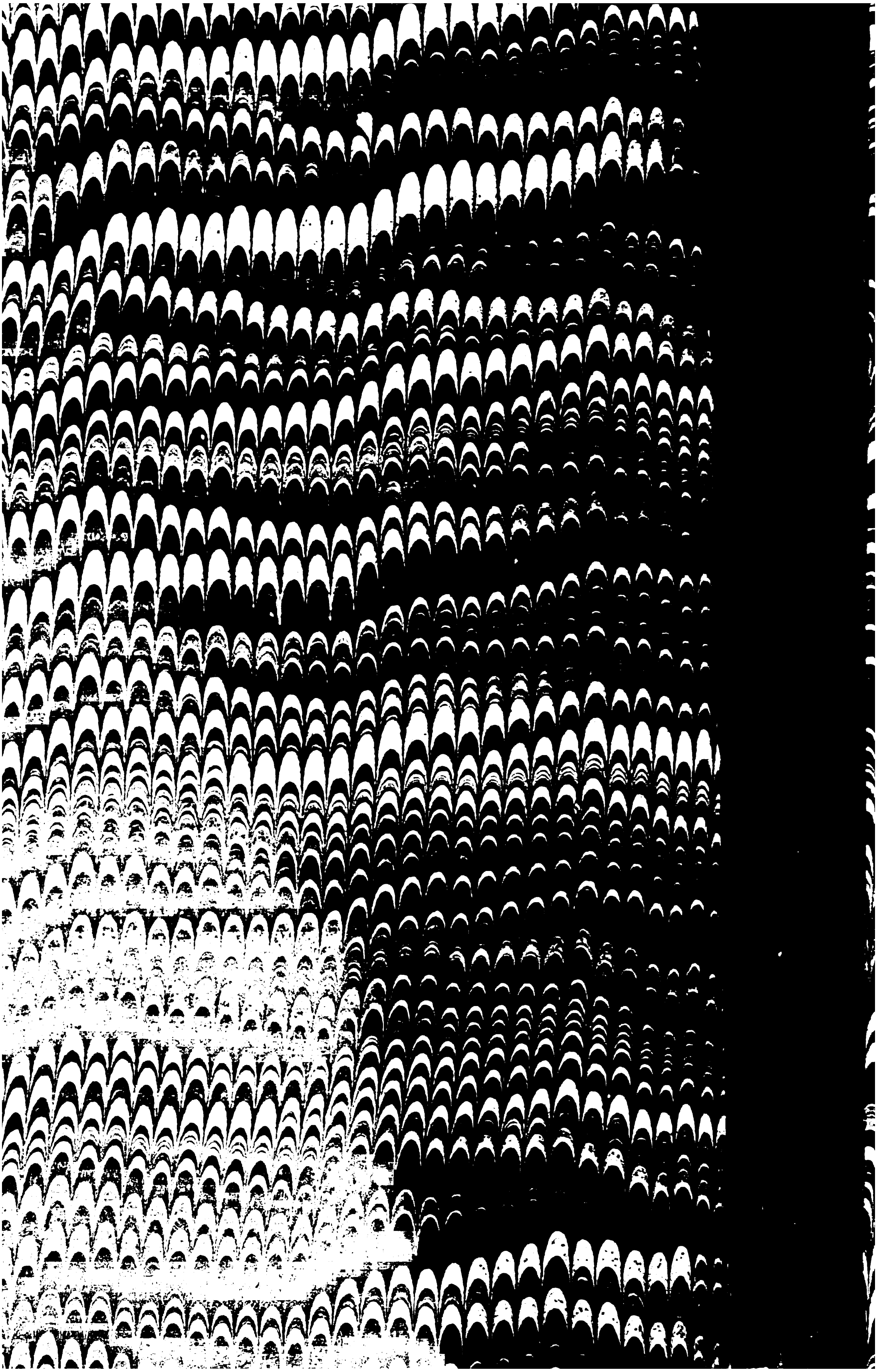
Plant woody and apparently perennial, about a foot in height, forming a small, but handsome branching shrub: *Stems* and branches cylindrical, slightly tuberculated and hairy. *Leaves* numerous, crowded, glaucous, slightly hairy, bipinnate; *Leaflets* obcordate, rather thickish, having semipellucid glands, most apparent on the under side; the whole giving out, when bruised, a smell similar to that of the *Common Rue.*

Panicle terminal, compound, graceful; peduncles and pedicels slender, slightly hairy, each having a smallish obovate leaf-like bractea at its base. *Flowers* slightly drooping, the terminal one upon the branchlets rather the largest, pure white. *Calyx* small, persistent, of one piece, deeply cut into four ovate, spreading divisions, glandular on the outside, and notched at the margin. *Petals* four, obovate, erecto-patent, caducous. *Stamens* mostly six in number, sometimes seven, sometimes eight, unequal in height, some exceeding the length of the corolla, others shorter than it, with white *filaments* and yellow *anthers,* and inserted around the base of a cup-shaped, rather large, fleshy *nectary,* of a whitish color, and toothed at the margin with small, glandular, obtuse, yellowish processes; a few of which are seen on the back of the nectary. From the centre of this *nectary* arises the pedicellated *germen,* shorter, however, than the petals, deeply four, sometimes five, rarely three-lobed, glandular, each, just below the extremity, bearing a filiform *style,* which uniting with the others, seem in a measure incorporated, so as to form only one. As these germens advance to maturity, they spread open, still, however, adhering by their styles for a time. *Ovules* six or eight in number, placed in two rows (some of them generally proving abortive): the more perfect ones or unripe *seeds,* ovate, striated and dotted; inserted upon a small, spongy, roundish receptacle in the front of the cell.

This interesting little species of *Ruta*, so unlike all the others with which I am acquainted, in the general appearance and color of the flowers, has, nevertheless, the same structure of leaves, and the same smell with the rest of its congeners. The number of the parts in the species of this genus seems to be very variable; but the stamens appear to me to be more frequently eight than ten. In regard to the generic character, too, there seems to be some obscurity; at least in this species I do not find " puncta mellifera," which are described as existing on the receptacle. There is indeed a remarkable gland or nectary surrounding the base of the germen, as in the other species of *Ruta;* but here there are no distinct pores. The germen is pedunculated, which I do not find to be the case with other Rutæ, and the styles, though united, so as to appear but one, are in reality four, or as many as there are lobes to the germen; and these are frequently separated as the lobes diverge, in the capsules' advancing to maturity. It is the only species with which I am acquainted that has white flowers.

The present individual flowered in the month of June of this year in the garden of my valued friend P. NEILL, Esq. at Canonmills, near Edinburgh, and was raised, among other rarities, from seeds which were received from Nepaul.

Fig. 1. Single flower. Fig. 2. Flower deprived of its petals and stamens. Fig. 3. Nectary, from which all but one stamen are removed. Fig. 4. One lobe of the germen. Fig. 5. Young capsule *(natural size)*. Fig. 6. Single lobe of the Capsule. Fig. 7. Single lobe cut open to shew the insertion of the seeds, (*a*, the scar of the stigma).—*All but* Fig. 5. *more or less magnified.*



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